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ABSTRACT

This paper presents a general overview of the educational administration process from both the theoretical and practical viewpoints. The discussion is organized into five major sections that focus in turn on development of an information system, definition of objectives, preparation of an educational plan, implementation of the plan, and evaluation. (JG)

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SOME ADMINISTRATIVE ASPECTS OF EDUCATIONAL PLANNING

James McCabe

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I. INTRODUCTION

1. General

It is not inappropriate to remind ourselves after some fifteen years of growing emphasis on training in the skills of educational planning, that planning constitutes but an integral part (albeit an important one) of overall educational administration. Indeed, now that most countries have 'educational plans', it seems that the major obstacle to development is the bottleneck which occurs at the implementation stage. Educational plans are not self-implementing; implementation must also be planned. For successful educational development then, more attention will have to be paid to training in other areas of educational administration, especially in the skills of implementation and evaluation.

In contrast to educational planning skills as practised at present, which are comparatively neat and clear-cut since they are largely founded on a quantitative base, implementation and evaluation skills are rather untidy and difficult, mainly on account of the many human factors involved which are not easily quantifiable. Thus, resistance to change often from entrenched administrators and older teachers with traditional-type training as well as from the public, may cause a well-nigh insurmountable obstacle to implementation for even the most rational of plans. Similarly, political wrangling and pressure may prove an equally formidable handicap. Then again, failure to communicate the plan in a comprehensible manner from the centre both to those charged with its implementation and to the public at large may create a hardy resistance to progress. In addition, successful implementation requires a much greater emphasis on participation in the preparation of the plan from all interested parties and thus requires more work and more time, involving a switch from the authoritarian directive-circular to group consultation, public meetings and greater use of the media.

But training in the skills of modern educational administration must of course, encompass much more than the factors concerned in these immediate and prominent bottleneck problems. Accordingly, having indicated the necessity to devote more attention to training in overall educational administration through highlighting above certain implementation difficulties, it is the purpose of this paper to give an overview from both the theoretical and practical viewpoints of the educational administration process from the definition of objectives on one side to performance evaluation on the other.

2. Historical

It is desirable at the outset to review briefly the origin and development of the principles of educational administration.(1) These emerged from the mother-discipline of administration which has undergone rapid evolution during this century.

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(1) The terms 'administration' and 'management' are used rather synonymously in this paper though the former tends to refer to the overall process of administration and the latter to the implementation aspect.

Firstly, emphasis on the cult of mechanical efficiency at the start of the century marked the beginning of scientific management.(1) Secondly, Taylor, Gannt, Halsey and Gilbreth(2) looked at physical work and production as a mechanical process performed by individuals whose productivity could be increased through time and motion studies, piecework and improved engineering efficiency of machines.

Thirdly, Fayol, Gulick and Urwick(3) from their studies showed the importance of organizational structure and the administrative process in increasing productivity.

Fourthly, in the thirties emphasis began to be placed on the role of human relations in increasing productivity, particularly following the non-empirical writings of Follet. The Hawthorne Investigations at Chicago, with which Mayo, Roethlisberger and Dickson were closely involved(4), provided the empirical basis to support Follet's ideas.

Fifthly, Barnard combined the findings of all these human relations' studies with those of all the important earlier findings to articulate a broader concept of the factors involved in improving efficiency, productivity and effectiveness in reaching goals.(5)

Sixthly, after the Second World War, an inter-disciplinary approach to the solution of large-scale administrative problems, termed operational research, emerged.(6)

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(1) L. Urwick and E.F.L. Brech, The making of scientific management, Vol. I, 'Thirteen Pioneers', Pitman, London, 1959.

(2) The making of scientific management, op.cit.

(3) The making of scientific management, op.cit.

(4) (a) L. Urwick and E.F.L. Brech, The making of scientific management, Vol. III, 'The Hawthorne Investigations', Pitman, London, 1961.

(b) F.J. Roethlisberger and W.J. Dickson, Management and the worker, Harvard University Press, Cambridge, Massachusetts, 1939.

(5) Chester I. Barnard, The functions of the executive, Harvard University Press, Cambridge, Massachusetts, 1956.

(6) W.E. Duckworth, A guide to operational research, Methuen, London, 1962.

Latterly, in addition to the refinements in the inter-disciplinary approach to administration, since the war there has been a marked growth in the computer and information sciences and their application to administration. Finally also, there has been a growing emphasis on increased democratization of the administrative process, especially through the introduction of participation in decision-making at all levels of the organization.

The principles of 'scientific management' as practised in industrial and commercial enterprises from the start of the century gradually began to influence administrative practices in education, but only in a patchy way; alert educationists aware of the transferability of the principles to their discipline were few.

It was only after 1930 that a search for administrative concepts specific to education was actively sponsored by educationists. The specific study of educational administration per se was not undertaken by the universities and professionals until about 1950 and this interest was still largely confined to the United States. It was at this time also that training programmes for educational administrators were established.

It is worthy of note too that parallel with the development of scientific management and of the principles of educational administration, pedagogical development brought a change of emphasis from teacher-centred first to methods-centred and then to student-centred education; to-day change to group-centred teaching-learning situations is in progress.

3. Educational administration process

The development of a theoretical framework for educational administration is justified most readily by the simple but profound statement of the American educationist John Dewey, who said:

"Theory is in the end ... the most practical of all things".(1)

Certain 'principles' or theories, even if they remain implicit, still govern the practices of all educational administrators. It is simply a scientific approach to make a synthesis of these theories so that they may be tested and developed.

Theory must, of course, incorporate the experience of the practitioner for if it does not subscribe to reality, it is useless. Thus theories without practice may be likened to maps without routes, as indeed practice without theories is contrariwise akin to routes without maps.

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(1) John Dewey, Sources of a science of education, Liveright, New York, 1929, p. 17.

The overall educational administration process is succinctly depicted in Figure 1. Here it may be seen that the existence of a good Information System is central to efficient administration of education. The definition (and re-definition) of objectives constitutes the point of departure. Educational planning, envisaged also as a continuous process, comprises diagnosis, prognosis and preparation of the education plan proper. As implementation of the proposals contained in the plan proceeds a simultaneous performance evaluation is conducted which (among other things) forms the basis for continuous reform. It will also be seen from Figure 1 that the existence of good information and communication systems is central to this overall concept of administration.

The administrative process depicted is all-pervasive for the large national organization as for the small institution, though emphasis for the various functions will differ greatly across this wide range. Educational administration may be envisaged as subdivided into central, regional and institutional levels with functions which differ accordingly but remain closely interrelated and geared by overall objectives.(1)

Distribution of authority and functions between these administrative levels varies between countries and is related to the extent to which decentralization has been adopted. A general indication of emphasis is outlined as follows:

(a) Central administration

Policy-making, national objectives, norms and standards, global plan preparation, drafting legislation, overall control and supervision.

(b) Regional administration

(i) Participation in global plan preparation.
(ii) Elaboration of regional plan, programmes and projects in accordance with the global plan.
(iii) Co-ordination of regional educational resources and implementation of the plan.
(iv) Channelling of vertical and horizontal communication between the centre, educational establishments in the regions and the community generally.
(v) Centre of data and information on educational development in the region.

(c) Institutional or school administration

(i) Organization and control of the teaching function within the institution.
(ii) Centre of community development as related to educational matters.
(iii) Day-to-day institutional administration.

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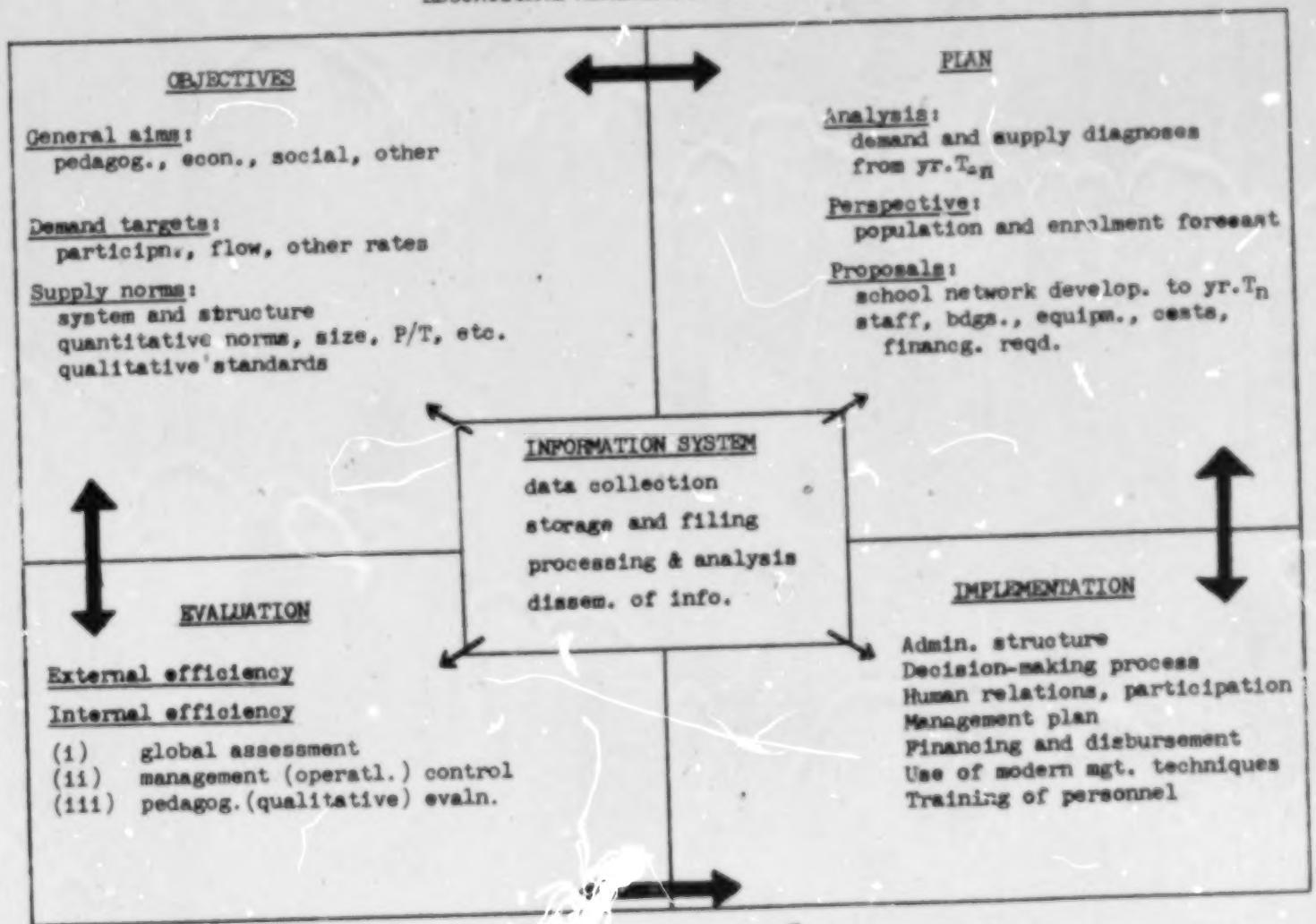
(1) The 'administrative region' or larger sub-state area as administratively organized is in mind here. Though this may not correspond with what might be termed an economically viable entity, it is noted that there is a tendency to re-define regions to have the administrative units correspond more closely with such economic units.

One may differentiate also between Regional and Local administration as four-tier structures - Ministry of Education, Regional Educational Authority, Local Educational Authority and Educational Institution - are frequently found even in small countries.

EDUCATIONAL ADMINISTRATION PROCESS



II. DEVELOPMENT OF AN INFORMATION SYSTEM

1. General

An Information System consists of a balanced co-ordination of operations between personnel, machinery and procedures designed to provide at certain points in time the best information for rational decision-making at every level of responsibility. It is the function of a good Information System to furnish in the most appropriate way all the information necessary for organising, planning and managing the activities of the education enterprise. It is for this reason that the Information System must service all elements of the over-all educational administration process and herein lies its fundamental importance as illustrated earlier in Figure 1.

The information process consists mainly of the collection, classification, storage, processing, utilization and dissemination of data and information organized through a series of appropriate Information Sub-systems and geared closely to the achievement of defined educational objectives.(1) It is not necessary that an Information System must be highly automated to be very efficient but modernization of the system facilitates increased automation including the use of a computer among other instruments.

2. Need for development of an Information System

It is clear that existing Information Systems in education are far from efficient and often constitute per sé obstacles to educational development. Many grew up at separate units in a piecemeal way without over-all co-ordination to cater for needs which are no longer current. Often static in conception, they became rather fixed and no longer serve the requirements of modern educational administration and management.

The following problems are characteristic of such systems:

- haphazard and disorganized data collection with much overlapping and repetition;
- outmoded classification, filing and storage;
- over-abundance of data which are not directly related to decision-making and achievement of educational objectives;
- lack of exploitation of available data and weaknesses in processing, utilization and dissemination, including bottlenecks in decision-making and communication.

Modern Information Systems on the other hand display the following characteristics:

- common classification and coding systems facilitating integration of the units and obtention of uniformity in procedures;
- improved speed, detail and accuracy of information supplied;
- improved decision-making procedures providing top administrators with excellent means for co-ordination;
- uniform accounting system and more rational allocation of resources often leading to financial saving (without loss of employment, necessarily);
- rationalization of data processing and communication system;

---

(1) Data or processed data organized to respond to a specific objective constitutes information.

- provision of a sound basis for the application of modern management techniques including the introduction of increased automation and computerization;
- more relevant information more quickly communicated to interested outside parties and the public.

It is becoming increasingly clear particularly in developing countries, that difficulties in implementation of sound education plans are due to weaknesses in the administrative infrastructure especially in the Information System, which is often incapable of providing required data at given points in time for making a performance evaluation or taking corrective action. Sophisticated plans without efficient administration and information systems must remain sterile. Development of modern Information Systems in education are more especially necessary because of increased pressure for decentralization and local participation in planning so as to attain or maintain co-ordination, ensure national uniformity in classification and coding and enable comparative evaluation.

3. Development of an Information System

Development or rationalization of the existing Information System is best organized centrally. This should be regarded as a large-scale reform requiring a top-level political decision and the active interest of top administrators. The first step then constitutes the establishment of an Analysis Unit (perhaps within the Planning or Development Division) to carry overall responsibility for development of the Information System.

The principal functions of the Analysis Unit will include:

(a) Analysis of existing files as a prelude to setting up the system;
(b) Structuring the system; deciding on appropriate sub-systems and on a single coding system;
(c) Establishment of data base and data bank;
(d) Phasing in and continuous development of the new Information System.

(a) Analysis of existing files

This extremely important preliminary exercise is meant to elicit:

- the functions to be performed by information;
- identification and enumeration of the exact information required in relation to defined educational objectives and the needs of the user for rational decision-making at every level of responsibility;
- identification of sources of information;
- the way in which the information is to be collected from the sources, stored at the centre, processed and communicated eventually to the user.

(b) Structure and coding

The Information System is divided into its main component parts which are called sub-systems. Here different approaches are possible but the sub-systems should be divided among a small number of principal elements consistent with the logic of the data. Vertical division into levels and a certain horizontal break-down into other main elements would seem a logical approach.

Division by level could be as follows in accordance with the International Standard Classification of Education (ISCED) (1):

Code	Level
0	Education preceding the first level
1	Education at the first level
2	Education at the second level: first stage
3	Education at the second level: second stage
5	Education at the third level: first stage, of the type that leads to an award not equivalent to a first university degree
6	Education at the third level: first stage, of the type that leads to a first university degree or equivalent
7	Education at the third level: second stage, of the type that leads to a postgraduate university degree or equivalent
9	Education not definable by level

The following horizontal division into elements based on a demand/supply concept is proposed:

Enrolments
Personnel
Activities (2)
Buildings and equipment
Costs and financing

Enrolments represent the 'demand' from society for education and the remaining elements represent the 'supply' given.

It is not possible in this overview to discuss the coding system in detail but an example of the ISCED system by level (to the second-level) and curriculum is given:

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(1) Unesco, International standard classification of education, Paris, 1974.

(2) Activities include curriculum and other educational and social activities undertaken.

Curriculum field \ level	0	1	2	3
01	001 general	101 general	201 general	301 general
04		104 some vocl. emphasis		
08		108 simple literacy		
10		110 functional literacy		
14			214 teacher training	314 teacher training
18				318 fine and applied arts
26				326 religion and theology
34			234 commerce	334 commerce
50			250 health auxiliary	350 health auxiliary
62			262 agric., forestry, fishing	362 agric., forestry, fishing
66			266 home economics	366 home economics
				370 transport and communications
74			274 trade, craft, industry	374 trade, craft, industry
80	080 special handicapped	180 special handicapped	280 special handicapped	380 special handicapped
99		199 other	299 other	399 other

This 5-digit code can be read as follows:

10100 first-level general curriculum
20100 second-level, first stage general curriculum
23401 second-level, first stage general commerce
30101 second-level, second stage general curriculum
37416 second-level, second stage building trade programme

A coding system must similarly be constructed for the other elements and a code book drawn up. This code book containing the full coding system will be continuously updated.

(c) Data base and data bank

Establishing a data base is the first step towards an integrated information system. Data is recorded and stored in accordance with the structure and coding system already decided upon. Recording must be planned to facilitate interrelation between the various files and linking up the various components of the system. In circumstances where a computer is in use the data base consists of recorded information on cards, tapes and drums for ready computer use.

The data bank contains useful additional information which is not organized in any specific way.

(d) Continuous development

It will be evident that a modernization of the Information System must be a phased process. Decision to rationalize and modernize as mentioned earlier, must be taken at the highest level and followed through with the active support of top administrators.

Phasing in should be carefully planned with a defined time scheduling and use of the Critical Path Analysis approach. Attention must be paid to retention of maximum flexibility to allow for future developments.

The proposed reform should be fully explained to personnel prior to and during phasing in. The training of staff most actively involved in operating the new system is a very important task.

It is well to concentrate on one or two priority sub-systems only, such as Enrolments, or Costs and Finance, in the first phase.

In a highly automated system MIS (Management Information System) may be formally introduced. An MIS has four parts (1):

- a data base (DB);
- a DB control programme-retrieval and up-dating of the data it contains;
- programmes of specific application for users;
- a message control programme from and to terminals.

Establishment of a modern Information System as outlined may seem over-ambitious in the existing circumstances of many developing countries. Still it must be emphasized that education is administered at present under some form of 'information system', however disorganized. Rationalization of the existing system must receive a high priority if effective educational development is to be achieved. The basic principles outlined in this section may be applied for such reform and at least a more efficient data system may be developed based on educational objectives and structures to respond to real decision-making needs.

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(1) V. G. Onushkin (ed.), Planning the development of universities, Vol.IV, Paris, Unesco Press, 1974.

III. DEFINITION OF OBJECTIVES

It is now almost universally accepted that the first basic requirement for the successful implementation of any project, programme or plan is a clear and quantified definition of objectives.(1)

Two main points are made by the minor school of thought which opposes this view:

- objectives are impossible to quantify satisfactorily or to transmit clearly, and attempted articulation only causes confusion;
- once stated, objectives are difficult to change.

On the contrary, the points made in support of the explicit definition of objectives are as follows:

- detailed, quantified articulation of objectives is of fundamental importance in the whole concept of planning and programming;
- data and information collection must be geared to defined objectives;
- analysis and diagnosis can be made and alternative proposals put forward for political decision in a scientific way only if prepared against clear-cut objectives;
- from the human relations viewpoint, defined objectives facilitate motivation, participation and co-ordination;
- rational evaluation is possible only if quantified objectives are explicitly stated.

Definition of objectives poses a major problem; it certainly involves much more than the pious platitudes frequently used such as 'educating the whole man' or 'preparing people for life'. Attention should be focused on problem areas and this is done through examination of past policy outputs, e.g. legislation, planning documents, regulations etc. Thereafter goal elements should be specified, from quantitative and qualitative viewpoints, distribution over time and resource allocation between different groups. A goal-hierarchy should also be set up in an attempt to fit means and ends and to link internal to external efficiency.

Articulation of objectives involves quantification to the greatest detail possible of the 'demand' and 'supply' elements of education mentioned earlier. This is not to say that the philosophical basis or qualitative aspects are to be overlooked, since these must remain as principal motivating factors, but rather that the 'bricks and mortar' with which educational progress is to be 'built' - accommodation, teachers, enrolments, finance, etc. - must be quantified for optimal allocation of resources.

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(1) Harold J. Leavitt and Louis R. Pondy (eds.), Readings in Managerial Psychology, 'The science of muddling through', Charles Lindblom, University of Chicago Press, 1964.

Thus educational objectives may be articulated and quantified from a range of goals classified under the following headings:

(a) General aims : pedagogical, economic, social and others;

(b) Demand targets : participation, flow and other rates;

(c) Supply norms : system and structure, quantitative norms, e.g. size, pupil/teacher ratio etc., qualitative standards.

(a) General aims:

pedagogical

- structural change and modernization of the education system;
- progressive curriculum development;
- modernization of teaching methods and educational technology;
- improvement of teacher training;
- amelioration of pedagogical evaluation and of the inspection system;
- improvement of qualitative standards.

economic

- a better fitting of the education system to suit the manpower needs of the regional and national economies while taking also the social demand of the community into account;
- pursuit of optimal utilization of existing resources and of increased productivity;
- rationalization of school network with regulation of minimum and maximum school size;
- improved utilization of teachers through implementation of minimum-maximum student/teacher ratios;
- improved utilization of premises and physical facilities by both students and community;
- standardization of the provision of educational accommodation through the imposition of area and cost standards so as to hold down unit costs and facilitate the industrialization of the building process;

social and cultural

- equalization of educational opportunity;
- education of students in accordance with aptitudes;
- educational provision for handicapped and disadvantaged;
- welfare expenditure, e.g. on transport, meals, textbooks, scholarships, etc.
- provision of educational and vocational guidance;
- provision of facilities for pre-first level education;
- regulations on compulsory school development;
- emphasis on post-compulsory formal education, including apprenticeship training;
- provision of facilities for out-of-school or adult education;
- renewal of cultural base for educational development;
- provision for student, parent and community participation in educational development.

(b) Demand targets:

Rates may be set for the following:

- participation rates; boys and girls by region and age-group; perhaps by ethnic or other group also;;
- admission rate to first-level education and transition rates to the second-level and to second stage;
- rates for promotion, repetition, drop-out and retention;
- rates for entry to certain subject-options at the second stage.

(c) Supply norms

- minimum/maximum school size;
- internal and external physical facilities; m^2 per pupil-place, ratio teaching/non-teaching/ancillary accommodation;
- utilization rates (time and space norms);
- pupil/teacher ratios, class size, annual class-teaching hours for teachers;
- recurrent and capital unit costs;
- financing mechanism: percentage public/non-public; proportion central/local authority, proportion private and foreign aid;
- qualitative standards.

Definition of objectives will be distinct and differ in detail for central, regional and institutional levels of administration, reflecting their separate functions. While fitting within the framework of centrally defined educational objectives, those for various regions and institutions will differ through their reflection of the variations between regions in economic, social and cultural background and between institutions in the different lines of development proposed for them. A problem for central decision is the extent to which regional and institutional variation can be tolerated without disrupting the overall uniformity of national objectives.

Who defines educational objectives? Definition is the end product of much communication and consultation between all the interested parties, including educational administrators and planners at all levels, teachers, students, parents and specialists. In addition, the national council for education (if one exists), special commission reports and curriculum committees will influence the final format that educational objectives will take.

It is desirable that professional and public debate on educational objectives be continuous, as they must undergo constant reform. In this regard it might be mentioned that sudden changes of policy and objectives by central administration, without effective regional and institutional consultation and communication, can hamper smooth implementation through creating human relation problems of credibility and frustration; regional administrators and school heads lose the confidence of staff, students and community from such sudden changes of gear or of route.

Clear and quantified articulation of educational objectives at the central level does not exist at present in many cases; there is probably even less definition of objectives at regional and institutional levels. To fulfil the first basic principle of educational administration, this shortcoming might be set right.

IV. PREPARATION OF THE EDUCATION PLAN

1. Planning framework

Implementation of a certain 'plan', however rudimentary, is at the heart of the administrative process. Accordingly, it is appropriate to start this section by showing a framework for the preparation of an education plan in Figure 2. Here it is envisaged that the main function of the plan (whether central, regional or institutional) is to prepare proposals for a feasible supply of educational goods and services - accommodation, staffing, equipment, etc. - to meet a certain demand for them (enrolments) which has been rationally projected to a certain target year.(1)

The period covered by the short-term education plan is usually five years and may correspond with that of the national economic and social development plan. The global educational plan must of course be prepared within the framework and criteria of the national economic plan; similarly regional and institutional plans should emerge from the regional plan for economic and social development (where this exists). Since economic and education plans are simultaneously prepared, it is obvious that close and continuous communication between economic, physical and educational planners is necessary.

The notion of the 'rolling' plan is also envisaged whereby fifth or 'horizon' year targets are added at the conclusion of each year of the plan in the light of evaluated performance. When the original plan has run its course, a new five-year plan will have been prepared after thorough analysis and will be ready for publication and implementation.

It is considered that the preparation of a rational, practicable and meaningful plan depends in the first instance on the availability of defined educational objectives and good data, information and communication systems. For effective implementation of the plan, it is also necessary that participation by regions and institutions in its preparation be methodically stimulated from the centre: "Policies should be made by those who will be expected to live and work according to them".(2) This implies of course, that they must be involved too, in the articulation of objectives.

The time schedule and procedure envisaged for preparing the educational development plan, assuming September as the start of the school session, may be outlined as follows in reverse chronological order:

1 July (current year)

Publication of global five-year National Educational Development Plan and re-drafting of regional and institutional plans accordingly in the regions.

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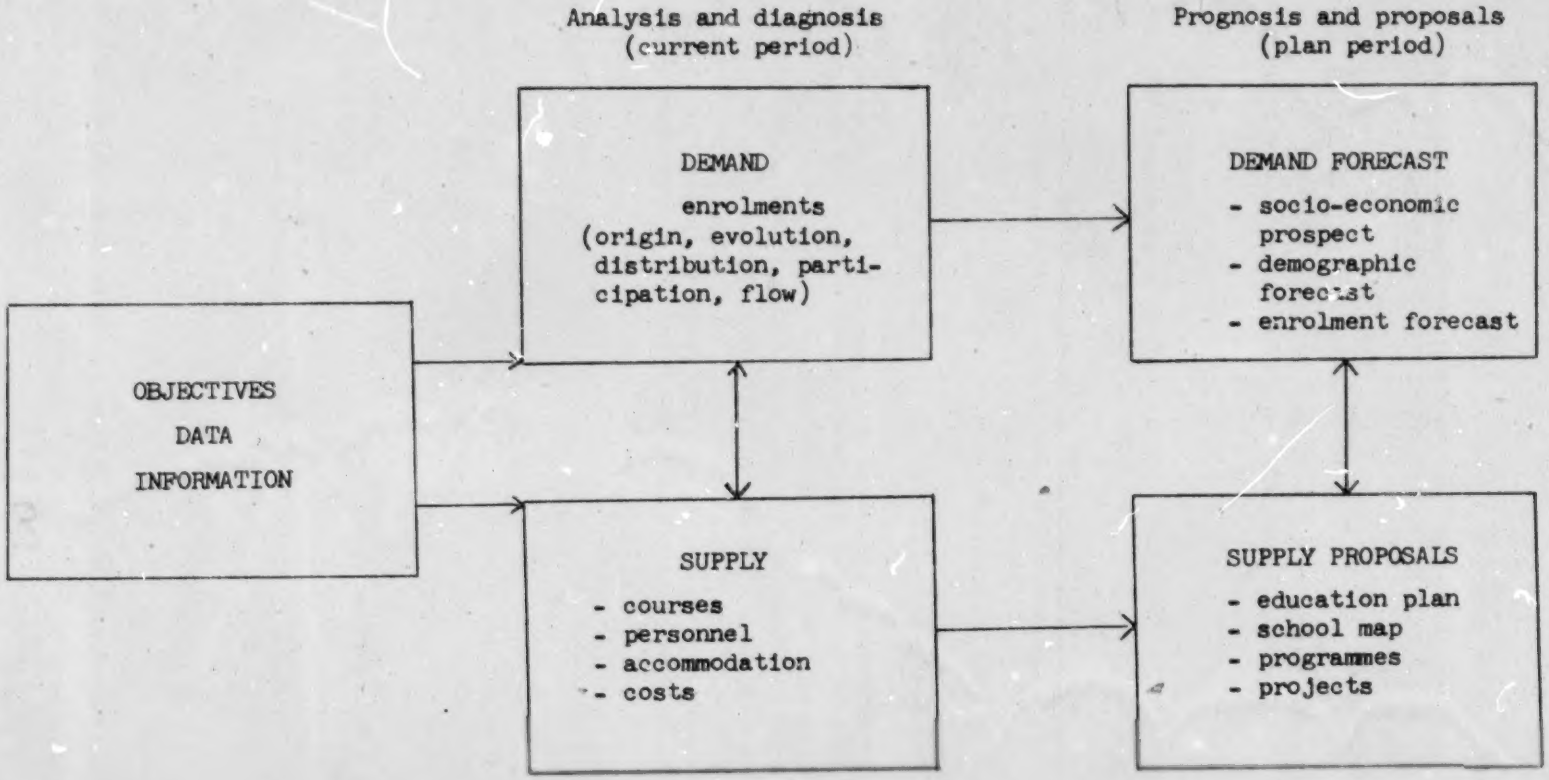
(1) The word 'demand' is not used here with its full economic connotation; it represents effective demand or actual enrolments.

(2) Roald F. Campbell, John E. Corbally (Jr.) and John A. Ramseyer, Introduction to educational administration, Allyn and Bacon, Boston, 1962.

Figure 2. Framework for plan preparation



1 March

Global plan agreed by Government.

1 January

Draft global plan submitted to Government; consultation and adjustments per financial constraints and pressures.

1 July (previous year)

Draft five-year plans submitted from regions to the centre; cross-checking, reconciliation, consultation, adjustment at centre.

1 March

General guidelines for plan preparation from centre to the regions; centre-regional-institutional consultations.

The final draft of the education plan will include not only the influence exerted through participation of the regions, institutions and other interested parties but also that emerging from political pressures and from the findings of specialist reports.

2. Analysis and diagnosis

Plan preparation is still based largely on scientific analysis and diagnosis of recent evolution of the education system. The analysis will be historical, covering in detail the evolution of education during the last five years. It will be comparative and typological, making internal comparisons by institution, administrative area, recruitment zone or other suitable unit; international comparisons will also be made where appropriate. Qualitative as well as quantitative analysis will be undertaken as far as possible. The analysis will focus separately on the demand and supply sides of the education enterprise.

(a) Analysis of demand

It is first necessary to decide upon a standard and widely used classification of education by level. Accordingly, the International Standard Classification of Education (ISCED)(1) (mentioned earlier and shown in greater detail here) is recommended.

0 Education preceding the first level, where it is provided, begins at age 3, 4 or 5 and lasts for about one or two years.

1 Education at first level usually begins, therefore, at age 5, 6 or 7 and it lasts for about five years.

(1) International standard classification of education, op. cit.

2 Education at the second level: first stage, begins at about age 12 and lasts for about three years.

3 Education at the second level: second stage, begins at about age 15 and lasts for about three years.

5 Education at the third level: first stage, of the type that leads to an award not equivalent to a first university degree begins at about age 18 and lasts for about three years. Thus, at about age 21 students who have progressed through the regular school system to complete these programmes are usually ready to enter employment.

6 Education at the third level: first stage, of the type that leads to a first university degree or equivalent also begins at about age 18 and lasts for about four years. Thus, students who have progressed through the school system to complete their first degree are usually ready for employment or for postgraduate study at about age 22.

7 Education at the third level: second stage, of the type that leads to a postgraduate university degree of equivalent includes all education beyond level 6.

This brief, formalized sketch of 'core' education provides a scale of measurement both within national systems and for international comparisons. This 'core' however excludes 'out-of-school' or 'adult education' programmes(1), which, together with special education for the handicapped must be included for educational planning purposes.

For succinct quantification and plan preparation this classification may be further aggregated into the categories A, B and C as shown in Figure 3, where special education for the handicapped is also included; category D represents Adult Education which may also be classified by level in the same way as that shown for categories A, B and C.

Analysis of demand or enrolment for these four categories then is made under the following broad headings:

(i) historical: absolute and relative growth of enrolment by nature of school, level, [illegible], boarding/day, male/female, full-time/part-time, etc.;

(ii) participation: enrolment ratio, first/second/third levels, enrolment/population, etc.;

(iii) flow: admission, promotion, repeater, drop-out and retention rates;

(iv) spatial: distance and time proximity of students to institutions, standard of communication routes, means of transport;

(v) sociological: social background of students, leavers' destination.

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(1) The term 'adult education' is hereafter used as synonymous with 'out-of-school education'.

Figure 3. Categorization of education for planning purposes

Category	Level and type	Public	Private	Special education	
				Public	Private
A	Pre-first level First level				
B	Second level: - first stage - second stage				
C	Third level: - first stage, non-degree - first stage, degree or equivalent - second stage, post-graduate				
D	Adult education: - Category A - Category B - Category C				

A question arises as to whether data for the start or the finish of the school season or average figures should be used. Some standardization may be necessary here so that comparisons are well founded since end of session, end of financial year and start of calendar year data are often misused comparatively, within the same country.

(b) Analysis of supply

Analysis of education supply may be made under the following main headings:

(i) educational structure and system
(ii) teaching staff
(iii) curriculum
(iv) accommodation
(v) costs and finance

(i) Educational structure and system

Organizational structure of the education system is described with the aid of an organigram. An education system is most clearly defined as illustrated in Figure 4. Such figures are best prepared within the framework of the ISCED classification.(1) Further to describing the present education system, reforms introduced during the period under analysis should also be identified.

(ii) Teaching staff

Data on present staff stock, qualifications' profile, age structure (quinquennial breakdown), and turn-over rate are necessary. Breakdown should also be made under the headings: teaching category, sex, full-time/part-time, qualified/unqualified. Where absences are frequent and prolonged, these should also be reduced to full-time equivalent figures (whether or not part-time replacements are employed) since they have both cost and pedagogical implications. It is especially important for the second-level to assess the extent of fit between teachers' qualifications and subjects taught by them.

Full-time equivalent figures should be calculated for teachers and student/teacher ratios deduced on this basis. A more precise ratio which may be more helpful for analysis in technical colleges and third-level institutions where obligation hours for teachers may differ, is teaching hours per student. In a further refinement teaching hours may be classified by level of class taught and category of teachers.(2)

(iii) Curriculum

The fact that the curriculum must continually undergo development because of change in the learner, the learning process, manpower demands and in the nature of programme content or syllabus is now fully accepted. Thorough evaluation of the curriculum includes examination not only of the syllabus but

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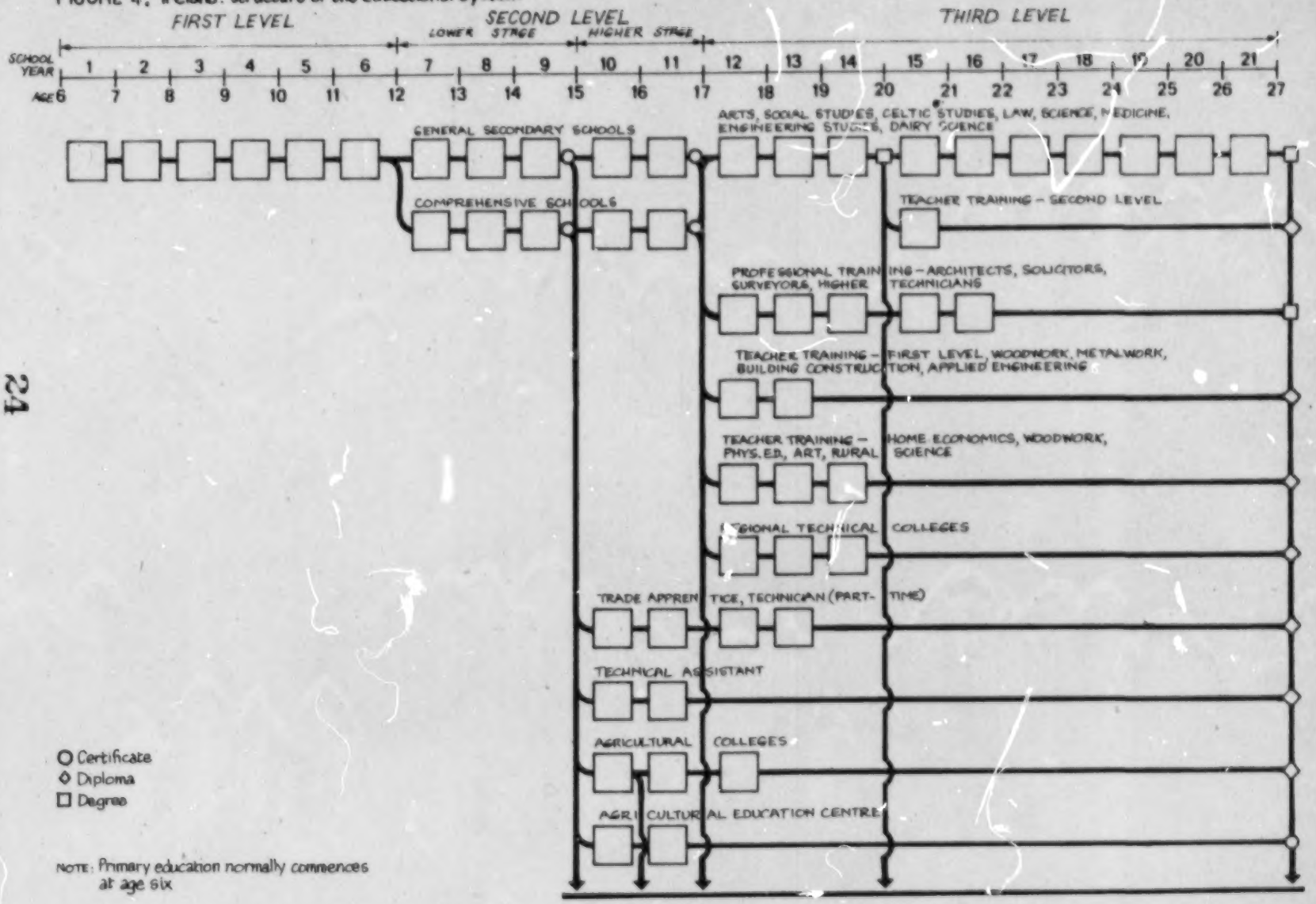
(1) ISCED, op.cit.,

(2) Department of Education and Science, A report on the use of costing and other financial techniques in technical colleges, H.M.S.O., Section 7, 1969.

FIGURE 4. Ireland: structure of the educational system



NOTE: Primary education normally commences at age six

also of its total influence as applied in the establishment, its environment and in the students' homes for the furtherance of stated educational objectives. Options available and chosen by second-level students should be compared with student aptitudes on the one hand and manpower needs on the other. Availability of options across regions will also indicate the level of provision of equality of educational opportunity. Analysis of curriculum should also include a comparative overview of teaching methods used, availability and utilization of teaching aids, functioning of the advisory service (inspectorate) and assessment of the nature and influence of the examination system.

(iv) Accommodation

Analysis of accommodation must include classification of establishments by enrolment and site size together with availability, standard, nature and utilization of accommodation. It is necessary to know if the premises are owned or rented, permanent or temporary and to have a breakdown of teaching area - general, special and other classrooms - as against non-teaching accommodation. Information on actual as against potential utilization of pupil places and educational facilities (internal and external) for students both of the formal and the adult education systems is desirable. In addition, availability and standard of mechanical services - water, light, heat, sewerage - should be assessed. The condition of buildings must also be assessed and a priority order for replacement, modernization or major repair set up.

(v) Costs and financing

Analysis of costs and financing should trace the absolute and relative growth of recurrent and capital expenditure. A breakdown of recurrent expenditure by purpose should be made, especially for teacher as against non-teacher outlay. Unit costs per pupil and per teacher should also be calculated.

Similarly, the trend of recurrent and capital financing by source - public (government and local authority) and private - should be assessed. Unit financing per pupil is also a useful figure to have.

3. Prognosis and proposals

The close relationship between the development of education, economic and social development and demographic trends is of fundamental importance for the preparation of an education plan, whether at national, regional or institutional level. Thus, a certain analysis of the economic and social perspective (including demographic analysis) should be made as a basis for the enrolment projections to be used in the plan. Such analysis is very necessary at regional level also for a better understanding of the problems of the community the education system is meant to serve.

(a) Socio-economic perspective

An assessment by region should be made of topography, natural resources, infrastructure and particular economic and social problems. Examination of the size pattern, ownership, use and productivity of farms may indicate the cause of many of these problems in developing areas. Assessment of the growth rate and nature of development of the industrial and services sectors will be a guideline to the absorptive capacity of these sectors for manpower leaving

the land. While this detail must necessarily be excluded from global educational plans and confined rather to regional or local plans, nevertheless the main findings should be incorporated in the national plan. The regional educational plan must naturally emanate from the economic and social development plan for the region where a regional planning strategy is being adopted.

In addition to absolute and comparative trends, demographic analysis will give the age-structure, density, spatial distribution and extent of urbanization of the population. Where it represents an important feature, a separate migration analysis may be necessary. Then on the basis of this demographic analysis (best made by region) and taking account of planned development projects population projections for the new five-year plan period and for a decade hence may be made as indicated in Figure 5.

(b) Development proposals

A policy decision on educational objectives, criteria, targets and norms (which should be feasible from financial, physical and human resource viewpoints) must underlie the preparation of proposals for educational development. The proposals thereafter depend in the first instance on the level of projected demand, that is on the enrolment forecast for the final year of the plan. Then the supply of education based on these enrolment projections will focus mainly on the location of establishments and additional accommodation (including facilities) to be provided, on additional staff required and on the financing of the proposals.

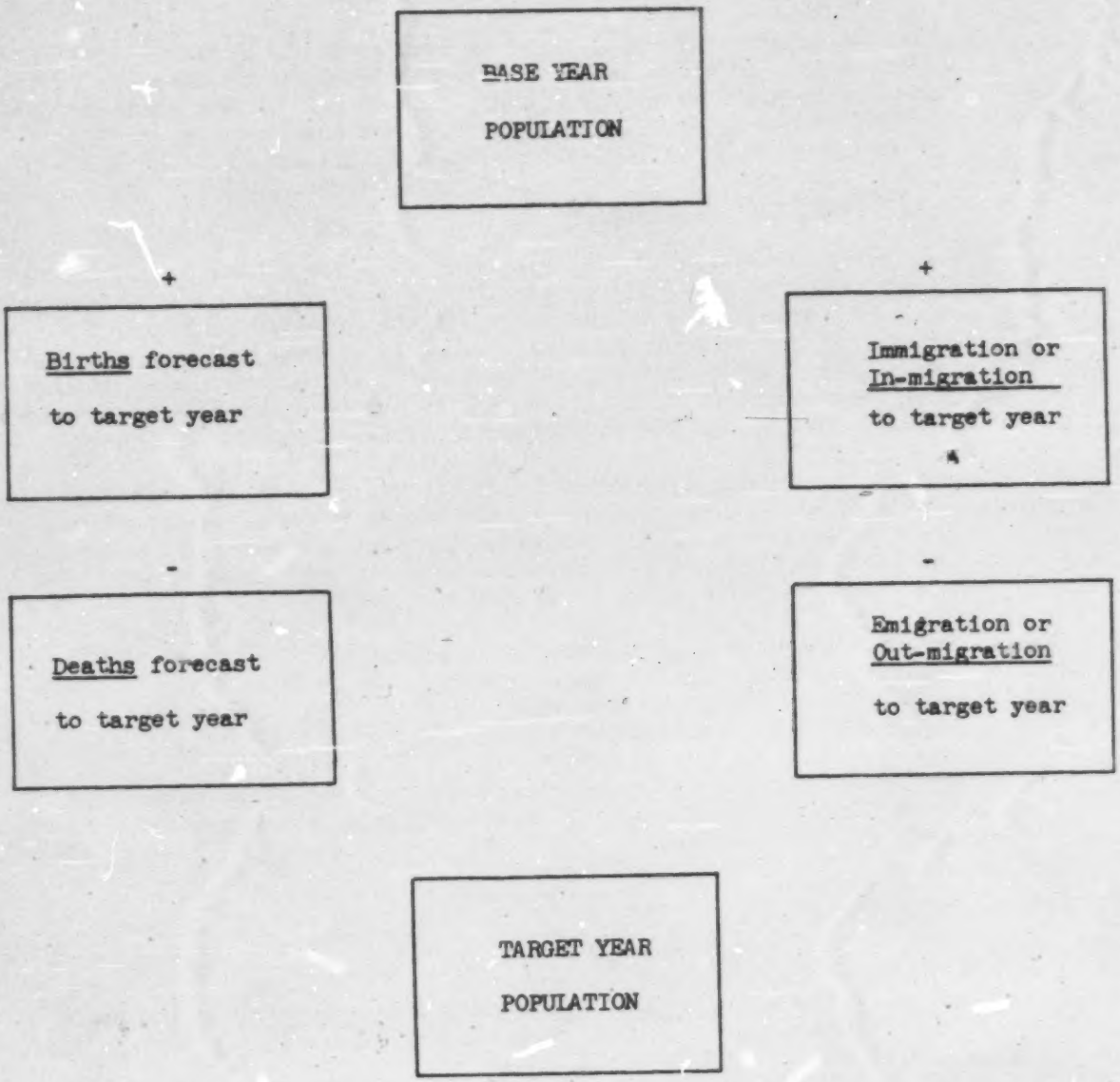
(i) Enrolment forecast

Participation targets will have been set realistically in the light of the base-year rates diagnosed. By application of these rates to first and second-level age-groups as shown in Table 1, enrolment projections may be made.

Table 1. Projection of enrolments

Age-groups	Demographic projection	Participation rates (target %)	Initial projected educational demand	Projected educational demand (adjusted)	
				Public	Private
Pre-compulsory					
First-level schools	...	...	...	....	....
Schools for handicapped	...	....	...	....	....
Compulsory					
First-level schools	...	...	...	....	....
Second-level schools	...	...	...	....	....
Schools for handicapped	...	...	...	....	....

Figure 5. Demographic forecast



However, projections of second-level enrolment were better based on the stock and flow of first-level pupils and on targets set for admission and retention rates.(1) Thus in a '5-5' system (five grades each in first and second levels) grade I first-level 1973 gives the maximum potential for first grade of second-level in 1978. In this approach account must also be taken of survival ratio, change in admission and retention trends, planned educational reforms, migration trends and planned economic and social development having an influence on population movements.

This method of enrolment projection is hardly valid for third-level institutions where student entry is controlled rather by the regulations of individual institutions and faculties. Suffice it to say in this context that every effort should be made to ensure the fit of enrolment by faculty with both the manpower needs of the economy and the aptitudes of students.

(ii) Education supply proposals

The two main parameters in preparing proposals for a network of schools are size of establishment and pupil population density. There must be certain minimum and maximum sizes for efficient organization of establishments. Between this minimum and maximum there is a range of optimal sizes depending on the emphasis to be laid on pedagogical, economic, social and institutional administration factors. Pupil population density on the other hand is closely related to demographic trends and participation rates.

Without going too far into methodology, it may be said that school mapping constitutes an excellent technique for making rational decisions on the location of establishments.(2) Before making final recommendations on location, an iterative approach must be taken so as to take factors such as the following into account in addition to national policies and criteria:

- economic and social development programmes;
- identification of 'poles' of growth;
- pattern of existing schools' network;
- topography and communications.

In the school mapping technique, the school map shows the network as planned for the target year of the plan, highlighting additional schools to be added and those for phasing out.

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(1) Ta Ngoc Châu, Population growth and costs of education in developing countries, 'A synthesis report of four country case studies', Unesco/IIEP, Paris, 1972.

(2) Jacques Hallak and James McCabe, Planning the location of schools: County Sligo, Ireland, Part III, Methodology, Unesco/IIEP, Paris, 1973.

(iii) Costs and financing of the proposals

Teacher requirements at the final year of the plan are calculated on the basis of enrolment projections and the targets for pupil/teacher ratio. Teacher costs are then assessed on base-year average salary. Total recurrent costs for implementation of the plan (at current prices) may then be deduced by adding the target set for non-teacher costs.

Cost of additional accommodation is usually calculated from the cost-limit per pupil-place and the additional pupil-places required. A certain capital expenditure allowance must also be made for modernization, major renovation and the acquisition of fixed equipment.

Bearing in mind the gearing of financing between public and private sources as analyzed earlier, a feasible distribution is again made between these sources. At this stage too, political decisions (for example on additional social aid) may be incorporated in the distribution of financing.

V. IMPLEMENTATION OF THE PLAN

1. Prerequisites for effective implementation

The main factors in effective implementation, given the existence of a good education plan, are well-trained personnel, a modern teaching programme, adequate accommodation and teaching facilities. Major prerequisites thereafter are an apt organizational structure and the existence of a good information system.

With over-centralization, diverse regional and local problems tend to be ignored and initiative at these levels cramped, causing communication bottleneck or breakdown and leading to human relations' problems. A well-balanced, decentralized system on the other hand leads to more rational planning, promotes participation, understanding and goodwill, and thus facilitates effective implementation. In true decentralization, adequate political, administrative and financial authority must be delegated to the regions; 'déconcentration' thus does not quite represent decentralization.(1)

Again, rational decision-making is possible only on the basis of objective-related information collected, co-ordinated and analyzed as between institutions, regions and the centre. It should be emphasized that information and communication systems must ensure the free flow of information upwards and horizontally as well as downwards from the centre, not only to facilitate rational decision-making but also for improved human relations.

2. Apt organizational structure

The education system may be viewed as a formal organization established on a legal basis and having a hierarchical network of human relationships for the achievement of certain defined educational objectives. Managing human behaviour within the organization so that the desired work output is most efficiently and effectively achieved may then be seen as the major factor in the implementation process. The organizational structure of the education system, or the defined network of hierarchical authorities and functions, is best illustrated by charts.

Organizational charts for central, regional and institutional (university) administration are shown in Figures 6, 7 and 8 respectively. Hierarchy of authority and outline of functions only are shown here. These charts also form the basis for detailed definition of duties, responsibilities, delegation of authority, span of control and communication procedures.

It must be stated that this concept of pyramidal, hierarchical or 'staff and line' nature of authority as illustrated by the organizational chart is being challenged as outdated.(2) It is suggested that the nature of authority is better characterized by the 'field' concept from physical science.

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(1) Jean-Claude Thoenig, L'ère des technocrates: le cas des ponts et chaussées, Les Editions d'organisation, Paris, 1973, Troisième Partie, pp. 143-187.

(2) Christopher Hodgkinson, The journal of educational administration, 'Changing the perspective: a first note towards a field theory of administration', Vol. IX, No.2, October 1971.

Figure 6. Administrative organization of the educational system, Nepal - 1971

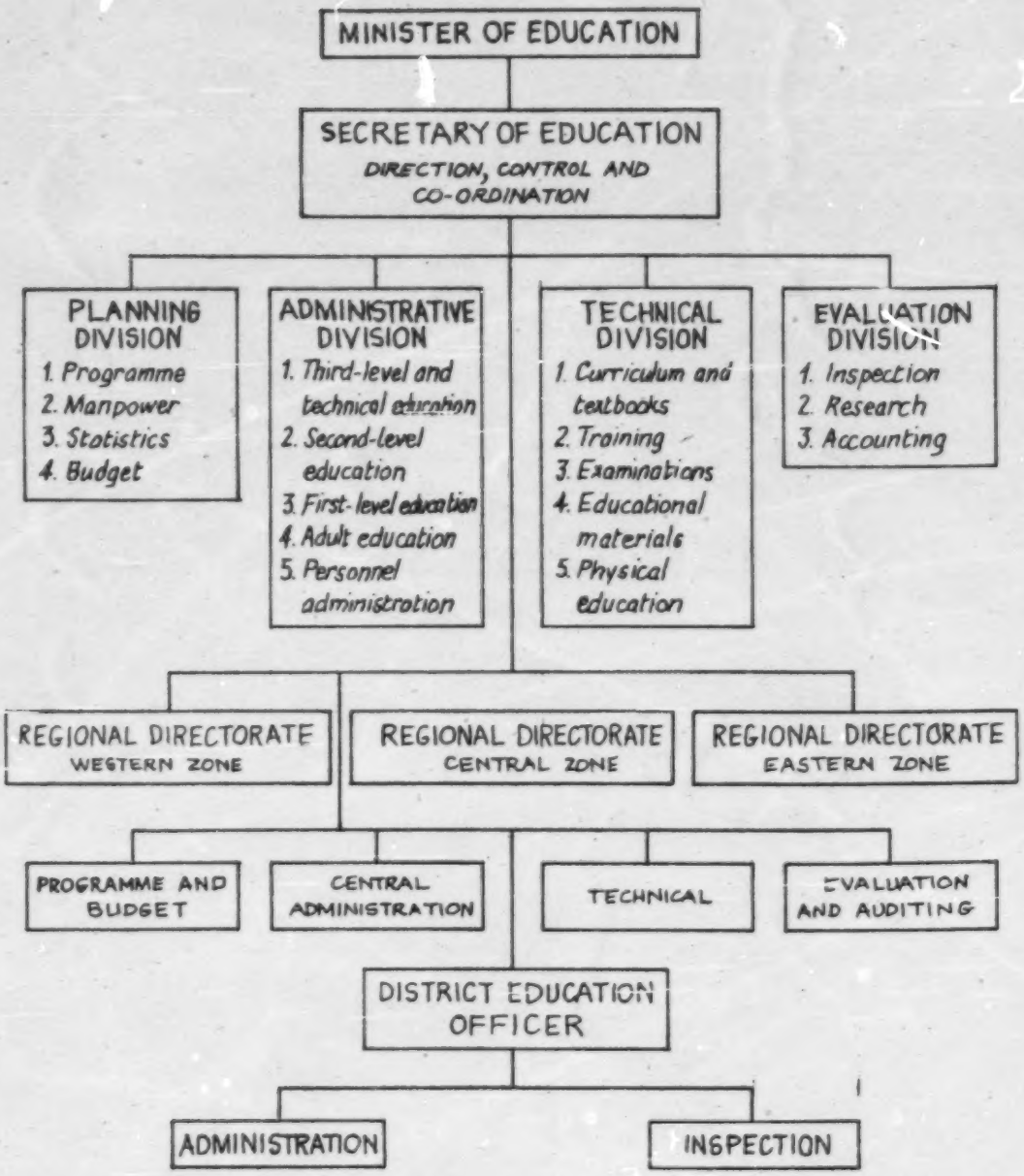


Figure 7. Organisational Chart for Regional Administration (Local Education Authority)

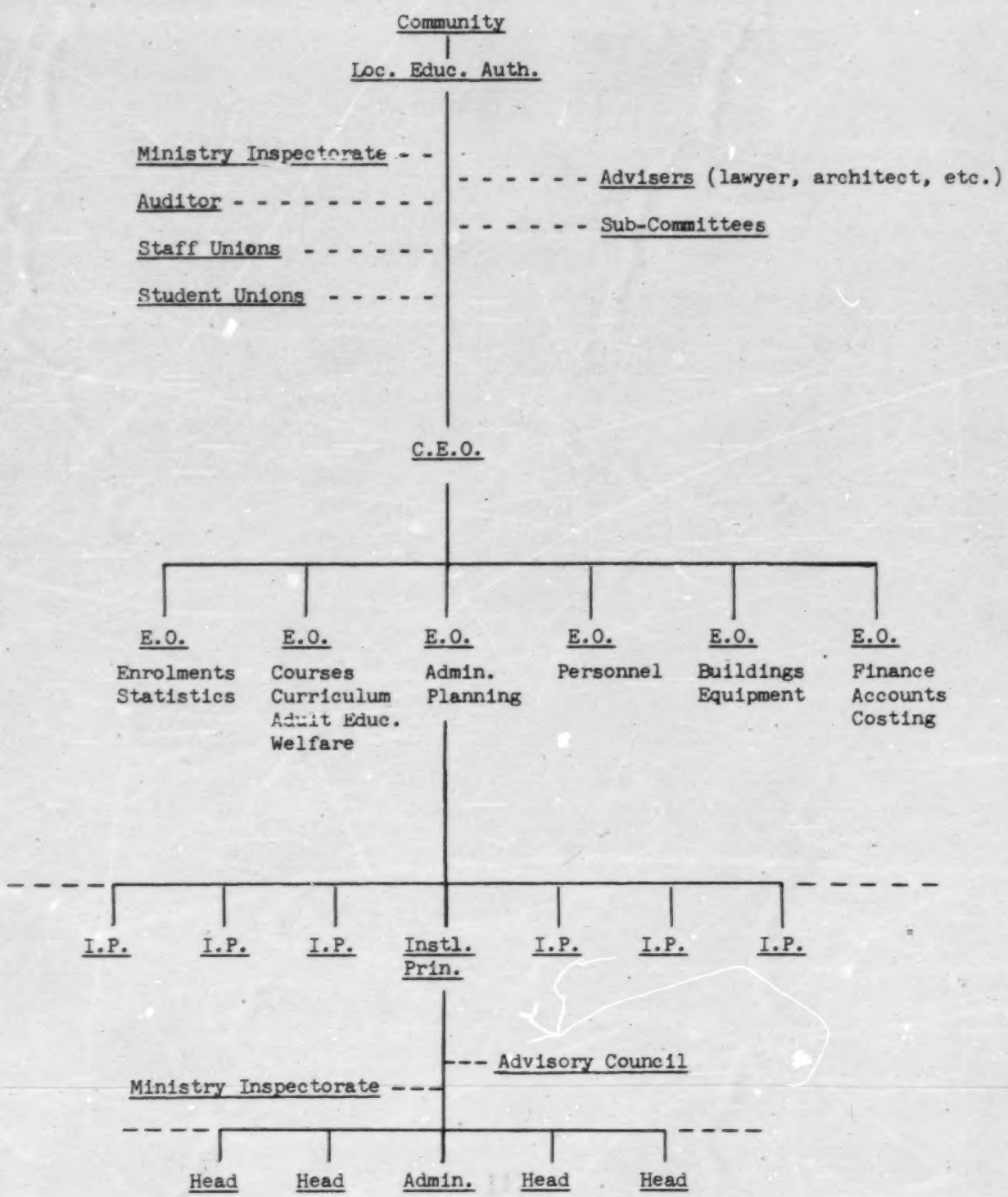
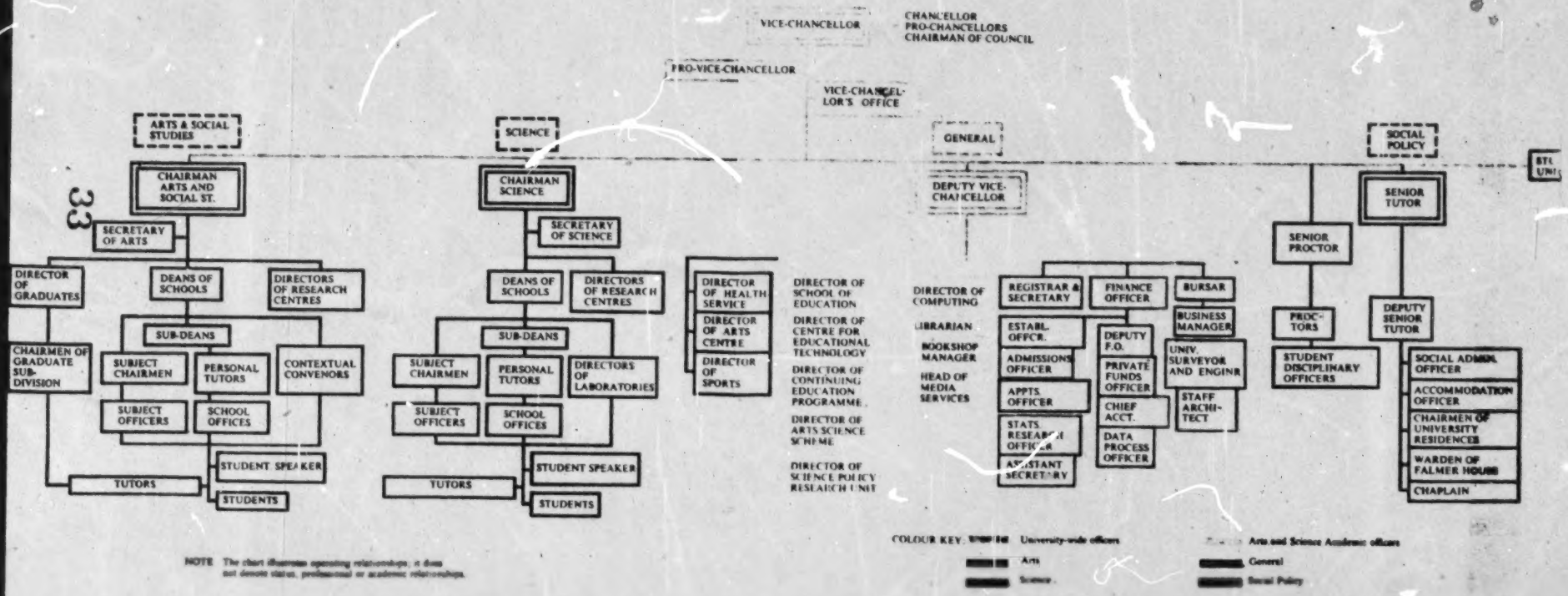


Figure 8. Outline of the management structure, 1968-69(1)

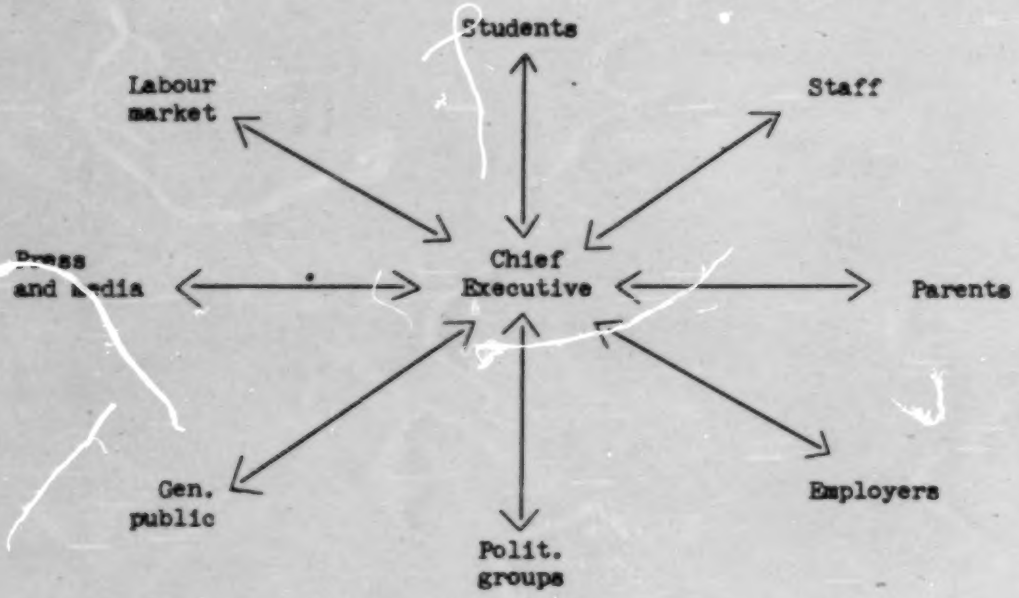


NOTE The chart illustrates operating relationships; it does not denote status, professional or academic relationships.

(1) Victor O. Onushkin (ed.), Planning the development of universities, Vol. I, Unesco/IIEP, 1971, 'University of Sussex', Chart III.

Whereas in the pyramidal concept power and authority move downward from the apex, in the 'field' concept power and accordingly authority, can enter at any point as shown in the following simplified figure. (see Figure 9)

Figure 9. 'Field' concept of authority



However, while this 'field' concept highlights the increasing democratization of organizations, whereby greater participation is encouraged and there is growing preparedness of enlightened authorities to be influenced internally by feedback and rational argument from subordinates and externally by pressures from interested parties who are becoming more and more articulate, nevertheless the fact remains that decisions must still be made by superiors and directives for action have to be passed down to subordinates.

In this context the question arises of the general relevance of such organizational charts to the large federation of states as against the very small country. It is suggested that the principle of hierarchical authority is not invalidated by size of country. The larger the country the more obstructive a centralized system is likely to be, that is, the higher the administrative pyramid the greater the danger of communications' bottlenecks. Thus, decentralization in very large countries must be applied horizontally as well as vertically; political, administrative and financial authority must first be delegated to the states which in turn may delegate to their regions. However, optimal size of region from demographic, economic and administrative viewpoints is far from being clearly defined.(1)

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(1) Metaphorically speaking a series of smaller pyramids are administratively more efficient than one large pyramid representing a large country. Decentralization of administrative authority is absolutely essential in such countries as Brazil, for example.

3. Information system

(a) Purpose

As discussed in Chapter II sound administrative decisions depend on the collection and rational analysis of relevant data. Rapidity and technical quality of communication aid efficient implementation. The introduction of an information system then refers mainly to increased automation of the collection, analysis and transmission of information. While this may connotate complex electronic computers and telecommunications, nevertheless the information system covers also the full range of more mundane office machinery, techniques and materials required for efficient office management in the very small as well as the very large organization.

Retrospective analysis of data is first of all necessary for routine management purposes such as disbursement, stock control and day-to-day operational problems. However, it is a weakness that most systems of educational management over-emphasize this aspect.(1) While the preparation of the education plan depends largely at present on a comprehensive analysis of recent evolution of the system there is need for greater emphasis on prospective analysis for management as well as planning purposes. The information system must thus be additionally geared to scan the future through sample surveys and simulation exercises, etc., as well as for retrospective analysis.

(b) Information process

Identification of the right questions to ask before collecting data is the key to improving the management of education systems. Statement and re-statement of problems and issues should therefore hold a high priority for the educational administrator. In formulation of a system for statistical returns, periodic reports and financial statements, a certain flexibility must be incorporated to allow for change and continuity. There is need for consultation and co-ordination between central, regional and institutional administrators in this regard to avoid duplication and overlap and to ensure comprehensiveness and synchronization of data returns.

Methods of recording data are rapidly evolving. There is a tendency to concentrate collected data more and more in cards, tapes, discs and drums so as to reduce volume for storage purposes, in addition to improving quality.

Since ready availability of stored data is required, rational classification, filing and storage are essential. Classification and filing for current use and data bank storage should be based on the educational administration process (see Figure 1), planning framework (see Figure 2) and organizational charts (see Figures 6, 7 and 8). Thus classification and filing divisions for an information system may be conceived as follows:

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(1) J. Alan Thomas, The productive school: a systems analysis approach to educational administration, Chapter 5, John Wiley, New York, 1971.

(a) Enrolments

(b) Personnel

(c) Activities (1)

(d) Buildings and Equipment

(e) Costs and Financing

The integrated nature of classification and filing is of great importance. Accordingly, each file must be compiled with reference to other elements of the system (matrix style); for example the file on teaching activities will contain data on teachers, buildings and equipment, students and finance for such activities. This concept of integration illustrated in Figure 10 as follows:

Figure 10. Information sub-system (matrix)

	Enrolms.	Personnel	Activities	Bdgs. and Equipm.	Costs and Financing
Enrolments					
Personnel					
Activities					
Bdgs. and Equipm.					
Costs and Financing					

(1) Activities files relate to the aims of the particular organization, e.g.:
- teaching: courses, time-table, etc.
- extra-curricular activity: adult-education, etc.
- etc.

Storage and retrieval are greatly facilitated by a practical coding system, that is one which provides flexibility, legibility and easy machine handling. A six-figure code, with two numbers representing the elements is found to be practical.

4. The process of plan implementation

Three stages may be distinguished in the implementation process:

(a) decision-making at hierarchical posts of authority following feedback analysis;
(b) communication of directives for action down the lines of authority;
(c) activation and financing of the programmes and projects concerned.

(a) Decision-making

It is helpful to differentiate between corporate and current decision-making. Thus, the five-year global education plan represents a large-scale, longer-term, corporate decision which envelops many lesser, current decisions to be taken continuously at all levels. Similarly, corporate decisions may be contained in legislation with regard to ownership and acquisition, financing, personnel, inspection, etc. Corporate decisions are also made at regular meetings of the Board of Education or Local Education Authority, which are recorded in minute books and convey authority to the administrator for implementation. One such decision worth noting is acceptance of the annual financial budget which when sanctioned by the centre becomes an authorization to disburse in accordance with the budget submission. All these corporate decisions facilitate the introduction of such management techniques as PERT and PPBS.

In this context it is useful to distinguish also the 'operational' or 'management' plan from the education plan. The management plan consists of the daily, weekly, monthly and annually repetitive formulae and procedures followed for the efficient operation of the education system with a certain co-ordination and synchronization between central, regional and institutional levels. These formulae in effect represent a middle-way between the corporate decisions mentioned earlier and the many current operational decisions which must continuously be made in the day-to-day management process.

(b) Communication

A main communication function is the transmission of decisions and directives within or from the Ministry, regional and educational establishments for effective activation of them by personnel. But communication also includes the whole process of consultation along with inter-personal, and inter-group

reactions leading up to decision-making and during the implementation process. In this regard, distinctions are usefully made between formal and informal communication on the one hand and internal and external communication on the other.

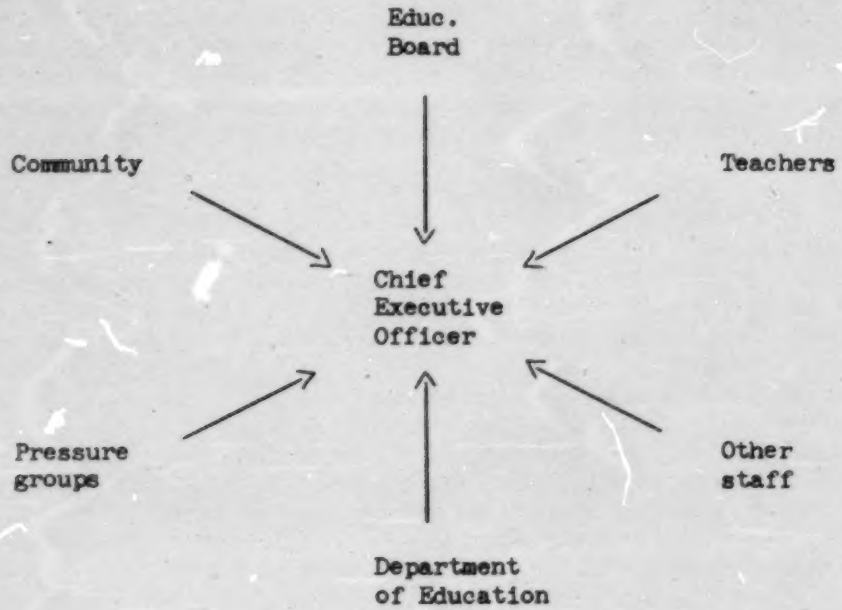
In addition to the normal process of formal, internal communication based on the hierarchical lines of authority (as illustrated in the organizational charts) there is also a complex informal, internal communication within organizations based on a network of social relations and shared orientations which act through interwoven groups and cliques. This constitutes the most difficult aspect of the human factor to understand being related (among other things) to the personality influences of individuals, attitudes and policies pursued by management personnel and environmental circumstances. It is known that increased divergence of objectives between the formal and informal structures is closely related to increased human relations' problems encountered. Account must be taken of these informal relationships as they are amenable to channelling towards constructive purposes if skilfully handled but may also deteriorate to destructive activities if mishandled. Increased participation in the decision-making process is cited as necessary to counter deteriorating human relations.

External communication or dialogue with the community formally and informally through the media and otherwise is also necessary. It is particularly essential for the implementation of large-scale decisions, such as the introduction of major educational reforms. Thus, to effect attitudinal change and win public acceptance for such reforms, influence is exercised formally through the organization of meetings, seminars, the timely release of news items and participation by top educational management personnel in media discussions. Administrators and teachers at regional and local levels must also get to know and influence the social and cultural structures of the community through active participation in community development activities. Similar influence exerted informally by a personal approach through participation in recreational activities, clubs, etc. is also an important factor in facilitating implementation of educational programmes and projects.

A clear-cut and coherent national overview of current educational objectives, should continuously be communicated in meaningful terms by central administration both to those charged with implementation and to the general public. Top central administrators should be characterized by an open-minded attitude and should be change-oriented. They themselves should initiate discussion on educational development and should encourage research in this regard. The central educational administration process too, should constitute a headline for field administrators.

The regional or local administrator (CEO) because he has responsibility to a local education authority composed largely of elected representatives to whom he must report at frequent public meetings, may become a more publicly recognized figure-head. He thus becomes a key figure in the administrative process, the 'man in the middle' of pressures as is illustrated in Figure 11.

Figure 11. Chief executive as 'medium' in educational management



As Barnard puts it: "It is precisely the function of the executive to facilitate the synthesis in concrete action of contradictory forces, to reconcile conflicting forces, instincts, interests, conditions, positions and ideals".(1) For him, leadership qualities will be called into play by which he can "live with controversy, understand and appreciate the source of opposing positions, have the courage to stand against opposition".(2) To exert effective influence, he must know and assess the social and political structure of the community - its culture, traditions, values, together with the poles and personalities of power; he must engage to an extent in political activity (not party politics) both formally through membership of development associations and informally through personal contacts.

Because the teaching-learning process takes place under his control, it is fundamental that the principal of each educational establishment has got a thorough knowledge of pedagogy in addition to basic administrative skills. It will devolve upon him to instil a love and demand for learning amongst students, staff and the public. He will exercise leadership by example, not only in the pursuit of knowledge but also in his influence on the environment of the school or college: the physical surroundings and surfaces as well as the atmosphere and tone amongst staff and students.

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(1) The functions of the executive, op.cit.

(2) Introduction to educational administration, op.cit.

Meetings, a form of face-to-face communication, have consultative, informational, staff and public relations' functions. The meetings may be formal or informal, internal or external. Regular informal meetings of individual principals with administration at the regional office and of individual regional administrators with those at the central office are important not only for detailed clarification of delicate problems, but also for building up helpful personal relationships. It may be added that it is also useful to have similar meetings in a horizontal sense at regional level individually and in groups as between principals and administrators of neighbouring regions.

A well-synchronized schedule for the holding of separate, formal meetings at the central office for the representatives of Local Education Authorities and the recognized associations of regional administrators, principals, teachers, students and parents should be in operation. A simple sequential schedule for communication at the regional level might be as follows:

(a) Local Education Authority meeting;
(b) principals' meeting at the regional office;
(c) staff meeting at each educational establishment;
(d) students' union meeting at each educational establishment;
(e) parents' meeting at each educational establishment;
(f) staff meeting at each educational establishment attended by regional administrator.

For a deeper understanding of the communication process, it is necessary to look more closely at the nature of authority, leadership and motivation. Authority may be defined as the exercise of control that rests on the willing compliance of subordinates; it rests on a co-operative personal attitude of individuals on the one hand and on the system of communication on the other.(1)

Authority may also be seen to have a two-fold nature:(2)

- formal authority: (known as the Nomothetic Dimension) incumbent in the post either implicitly or as explicitly defined by legal document, with listed duties and responsibilities;
- informal authority: (known as the Idiographic Dimension) influence emerging from personality traits.

Exercise of both dimensions (which are complementary) coupled with well-balanced delegation of authority are necessary for success.

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(1) The functions of the executive, op.cit., p. 175.
For discussion on the theory of authority, see also:
(a) Max Weber, The theory of social and economic organization, Glencoe, 1947.
(b) Herbert A. Simon, Administrative behaviour, MacMillan, New York, 1958.

(2) Ronald E. Campbell and James M. Lipham, Administrative theory as a guide to action, Midwest Administration Center, University of Chicago, 1960, p. 43.

It is appropriate here however, to refer to the 'field' concept of authority mentioned earlier and to cite also another slightly different view(1):

> "Authority and responsibility may well be the wrong principles of organization. It may be that we will have to learn to organize not a system of authority and responsibility - a system of command - but an information and decision system, a system of judgment, knowledge and expectations".

This view however, marks rather a shift of emphasis in the use of authority than a challenge of the hierarchical concept of it.

In any case, the great influence of leadership (i.e. the stimulating power of superiors on subordinates and others in pursuance of the organization's objectives) and of motivation (i.e. the desire of personnel to assist the achievement of these objectives) on improvement of work output is well known. Good leadership can play a particularly important role in education because of its positive influence in the administrative sense on the one hand and because of the very personal nature of the teaching-learning process on the other.

Leadership theory has undergone a shift of emphasis from the early notion of the 'born' leader, through leadership 'style' to the current idea of 'situational' leadership. Leadership is a function of the post held as well as personality traits.(2) Thus 'leadership effectiveness' as measured by the productivity, satisfaction, morale, etc. of the group led, is related to both the situation and the nature of the group led.(3) It is now accepted that there is no one style of leadership which may be defined and prescribed for success with all groups and in every situation; also those with a certain potential, may effectively be trained as leaders. These leadership principles have equal relevance for the selection and training of teachers as for administrators.

Positive motivation is related to the level of job satisfaction and self-fulfulment attained by personnel. This process is shown as a work cycle in Figure 12.

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(1) Peter F. Drucker, Managing the educated: management's mission in a new society, McGraw-Hill, New York, 1959, p. 147.

(2) Readings in managerial psychology, op.cit., p. 199.

(3) Frederick E. Fiedler, A Theory of leadership effectiveness, McGraw-Hill, New York, 1967.

Figure 12. Work cycle

Thus, if a sense of achievement is gained from work this leads to a personal satisfaction which, if shared by a large proportion of employees, raises the whole morale of the organization giving further work motivation.

What conditions are required so that this cycle is set up? Four basic points may be made as follows with regard to individual motivation(1):

"1. People exhibit a wide variety of needs, drives or motives, ranging from very physical needs, through ego and security needs, to social and achievement needs.
2. Within limits, people tend to concentrate their energies on only a few of their needs at a time. The others are put aside, either because they are sated or because they are too far off to be of immediate operational importance.
3. People seldom seek complete satisfaction of their needs. They tend to try for goals which are adequate or good enough, rather than the best of all possible goals.
4. Feelings of conflict result either when goals are set higher than one's achievement potential or when a person perceives his several needs to be inconsistent. These feelings of conflict in turn tend to cause off-beat behavior, like withdrawal from a situation or 'irrational' hostility."

(1) Readings in managerial psychology, op.cit., pp. 3-48.

Finally, there are three further areas of communication in the implementation process worthy of some discussion - that involving management-staff, institutions-PTAs (Parent-teacher associations) and that concerned with professional development. Negotiation on salary and conditions represents one side of management-staff communication and is best conducted on a well-defined mutually acceptable procedure; consultation and participation in policy development constitutes the other side. With a tendency towards steady increase in communication between institutions, PTAs and other external organizations, a main concern of administrators must be how to channel to the best effect the benefits these bodies can bring.

The educational administrator must also encourage the publication and dissemination of articles by specialists on educational topics. Provision of national, regional and institutional newsheets not only facilitates this aim but performs also a staff and students' relations' function, affording space too, for items on social, cultural, recreational and other extra-curricular activities. The brochure, notice board and social function also play an important role.

It must be mentioned in conclusion however, that this shift in emphasis from the written directive to greater democratic participation as recommended, is more laborious and time-consuming. Accordingly it requires planning and administrative skills to avoid wasteful 'talk-shops' and to gear discussion towards effective implementation.

(c) Activation and financing

This area of the implementation process refers mainly to the co-ordination of human and physical resources for efficient achievement of educational objectives. It is in this area and within the confines imposed by the organizational structure of the education system on the one hand and financial constraints on the other that optimal use of resources is sought with the aid of such modern management techniques as PPBS (planning-programming-budgeting system), CPA (critical-path-analysis), PERT (programme evaluation and review technique), cost-benefit analysis, cost-effectiveness analysis, input-output analysis and linear programming.

Financing constraints pervade all aspects of educational administration from the definition of objectives to teaching in the classroom. Thus, in the first instance, the definition of objectives to be realistic and effective must be made in the full light of financial feasibility. Then the preparation of costed alternatives for the educational plan, programme or project becomes a monetary statement of these objectives.

The rate of increase in expenditure on education is reaching crisis proportions from a financing viewpoint.(1) Rapidly expanding populations, growing costs in this labour-intensive enterprise, ever-increasing social expectations from education and the requirements of more sophisticated economies for continuously more highly-skilled manpower all exert constant pressure for more expenditure on education. Because increased expenditure on education is

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(1) Philip Coombs, The world educational crisis: a systems analysis, Oxford University Press, 1969.

also a most important means through which intervention can be made to stimulate economic growth and also to improve social mobility, there is a tendency for governments to accept further responsibility for the financing of education. But there clearly must be a limit to the level of public financing of education which can be reached; this enterprise must compete for limited funds with health, housing, other social services, etc., on which there is also much public pressure for improvement. In these circumstances it becomes increasingly necessary that skilled financial management is applied to education, including an analytical approach to the raising of funds, rational allocation and, efficient and productive use of finance through budgeting, control and the management of cash flows.

Basically, two main approaches may be envisaged in the attempt to contain the educational financing problem:

(a) pursuit of optimal utilization of existing resources and of increased productivity;
(b) search for means to expand financial resources.

In the structuring of financing mechanisms for the pursuit of optimal use of resources, a constant awareness of the fact that educational and financial objectives are interlocked and inter-dependent is fundamental. Thus, objective-oriented financing is the aim. Then in seeking optimization and increased productivity the mechanism might lead towards lower unit costs, equality of distribution of resources and positive effect on internal and external efficiency of education. That is to say, the efficiency of the financing mechanism must be judged not only by optimization of resource utilization within the entire system but also by the extent of correlation between the manpower needs of the economy and the educational skills of people leaving the system to join the work force.

The first checkpoint for the achievement of internal efficiency is on entry of students to various levels. Certain controls must be maintained, particularly at second and third levels, on the absolute numbers entering, their standard and suitability and on the choice of course open to them. The control policy pursued will mean striking an acceptable balance between the pressures of social demand as against manpower requirements on the one hand, and between economic, social and pedagogical factors on the other. Implementation of the decision in this regard will be facilitated by the operation of an educational and vocational guidance service and the gearing of grants and incentives' systems. Recent studies indicate too, that much remains to be done to reduce 'wastage' rates among students passing through the education system, i.e. by lowering repetition and drop-out rates, though the complexity of this problem has not yet been fully assessed.(1)

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(1) (a) Bulletin of the Unesco Regional Office for Education in Asia, Vol. I, No. 2, March 1967, pp. 30-34.
(b) 'Statistical research on internal efficiency of school systems', paper by G. Carceles, Unesco Division of Statistics on Education for Seminar at IIEP, 29 May-2 June 1972.

Search for possibilities to increase productivity leads to examination of means for improving the teaching-learning process, and of methods to obtain better utilization of staff and premises. Research on the teaching-learning process is continuous and profound along a very wide front. There is now a much deeper understanding of this process, a keener awareness of the great importance of the education experience of the early years of each infant, a knowledge of the need for commitment to life-long learning and an understanding of how modern educational technology can be exploited to improve educational productivity. The problems of dissemination of this knowledge and of its application widely in the field have yet to be overcome.

Quality and utilization of staff has a major bearing on the level of internal efficiency. The foundation of quality is the operation of a rational selection and training system. This is especially true for teachers who are in the 'front line' as far as the final achievement of educational objectives is concerned. Successful improvement of the teaching-learning process depends largely on having a well-qualified and continuously up-dated corps of teachers, well-versed in modern pedagogical methods and having a supply of practical teaching aids which they know how to operate. An acceptable level of quality may not be obtainable unless a salary system is offered comparable to that available for equal qualifications elsewhere in the economy.

Efficient utilization of teachers is delimited by the extent to which teachers' special skills are used and the institutional organization of the education system. For reasons often associated with a school network organization having large numbers of small second level schools, staff may spend much teaching time on subjects in which they are not qualified.(1) Teachers should also be encouraged to apply other personal talents - organizational, entertainment, recreational, etc. - to the general education of students, whether through such activities being time-tabled or by making extra-curricular arrangements for them. For efficiency, acceptable minimum and maximum student/teacher ratios must be adhered to and in this regard the average student/teacher ratio must not be allowed to hide wide disparities being maintained between different areas.

Similarly, good selection and training of administrators and inspectors helps to improve the internal efficiency of the education system. Picking teachers with 'proven aptitude' to 'get on with the job' of administration and inspection is no longer acceptable. Formal training in educational administration and 'inspecting' (or better advisory) techniques for those to be concerned with these functions must be given. It is being increasingly realized that lack of administrative skills both at the centre and in the field, is a major obstacle to successful implementation of educational plans.(2) Training in advisory skills for the inspectorate is equally important for improving internal efficiency.

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(1) OECD, Investment in Education, Stationery office, Dublin, 1965 ('Lynch Report').

(2) Frederick W. Riggs, The ecology of development, Indian Institute of Public Administration, 1964.

Increased utilization of physical facilities - external, premises and equipment - improves productivity. The starting point for ensuring better utilization is rational location of school networks. The school mapping approach, whereby development of school networks is aligned to economic, social and demographic trends on the one hand and educational objectives on the other, is a rational approach to location of schools. It may be mentioned that at least equality of distribution of capital expenditure and indeed discriminatory investment favouring disadvantaged areas must be a fundamental aim; aesthetic siting remains always a basic goal. Optimization of school networks must involve definition and adherence to minimum and maximum school sizes decided in the light of various educational objectives. Smaller schools are generally more costly and less pedagogically effective.(1) In addition, costs may be controlled and even reduced by a definition and operation of area and cost standards.

It is envisaged that external and internal facilities might be used as much as possible by full-time students but also by part-time day and evening students and the community as a whole for organizational, recreational, cultural and entertainment purposes as well as for educational pursuits. The modern community school idea has indeed the more ambitious aim of making the school additionally a service centre where the public library, sports arena and public information centre may be housed.

High time and space utilization rates for physical facilities are sought; time utilization rate meaning the overall time usage and space rate the proportion of available space used during class periods. Usage by small class groups may result in a high time utilization rate simultaneously with low space utilization rate. Many possibilities for increasing utilization rates may be considered including increasing class-group size, double-shift use of facilities, lengthening the school session, re-organization of the year into four terms, use of schools for cultural and recreational purposes during holiday seasons.(2)

The financing mechanism should be geared also to influence external efficiency of the education system. It must be admitted at the outset that fitting school leavers for the manpower needs of the economy is complicated and difficult to achieve. Improvement of external efficiency is achieved not only through rational control of admission of students and continuous curriculum development but also through the operation of enlightened apprentice training and adult education schemes, general re-training and overall inculcation of commitment to life-long learning. The curriculum should be geared to enable students to develop their personalities and skills from reflection and involvement in the social and economic problems of their own environment.

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(1) See: (a) J. Hallak and J. McCabe, Planning the location of schools: County Sligo, Ireland. Chapter X, Unesco/IIEP, 1973.
(b) Investment in education, op.cit.
(c) UNESCO, Comparative study of secondary school building costs, Paris, 1971.

(2) Jean Capelle, To-morrow's education: the French experience, Part III, Chapter IV, Penguin Press Ltd., London, 1967.

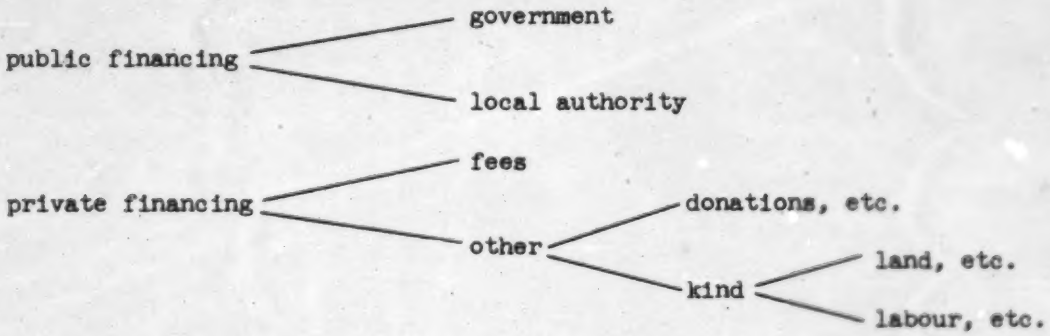
Parents and students must be informed of the job opportunities likely to be available with the aim of influencing the voluntary choice of options at second and third level education. Because of the accelerative growth of the store of knowledge and of technological development, the aim of the curriculum and the teaching method is now rather to prepare the 'educable' student. The following skills have been aptly placed in order of decreasing obsolescence(1):

- vocational and job skills;
- knowledge of principles and theories;
- ability to solve problems and develop analytical tools;
- ability to keep on learning.

Thus it is now seen that a narrow training in technical skills alone, however sophisticated, does not provide solutions to manpower planning problems. This is not to take sides in the age-old and barren confrontation between the 'vocational' and 'liberal studies' camps but rather to say that the new curriculum transcends them both leading to a comprehensive programme that fuses manual and mental education.

After this brief overview of the problems associated with optimization of existing resources, it is appropriate to look at the prospects of expanding financial resources for educational development, since additional funds will certainly be necessary to provide for increasing populations and participation rates, higher costs and improvement of the quality of education.

In analyzing the sources of finance a distinction is usually made between capital and recurrent financing. Then the sources are generally classified as follows:



There is also increasing interest in the loan system of financing education.(2)

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(1) Selected papers, No. 11, 'Education: some neglected opportunities', Graduate School of Business, University of Chicago, 1964, p. 2.

(2) Martin O'Donoghue, Economic dimensions in education, Chapter 9, Gill and MacMillan, Dublin, 1971.

Main possibilities for increasing funds for educational development apart from loan-financing, may be listed as follows:

- decentralization of public financing;
- education-specific tax raising;
- charging 'what the market will bear' for education;
- 'means-test' financing;
- work-education mix in financing mechanism;
- self-financing education.

The trend for some time now has been towards increasing public relative to private financing because of state intervention for social and manpower planning purposes. The point is sometimes made that more decentralization from central to local authority public financing might boost absolute funds but no relevant trend is evident in this regard. Nor has the raising of tax earmarked for education become very popular. Because a major latter-day aim has been the provision of equality of educational opportunity 'charging what the market will bear' or making students contribute in accordance with the cost of providing education, is not favoured, certainly for first and second levels, though this approach at university level is favoured in some countries. 'Means-test' financing is politically difficult to implement. The 'work-education' mix is gaining in prestige as an approach especially at third level not only for its advantages from the financial viewpoint but also for social and pedagogical reasons. The extent of self-financing possible through the use of land, workshop production, etc. is not great. Finally, the financing mechanism decided should be fully geared towards the achievement of educational objectives.

VI. EVALUATION

1. General

Evaluation may be defined as assessment of the degree to which objectives are being achieved. It was seen earlier that in many instances objectives are only vaguely defined and have little practical relevance to planning development programmes. In such cases the difficult but necessary task of defining relevant objectives must be undertaken. Only in the light of such definition can meaningful evaluation be made.

It is well to recall that the over-all purpose of evaluation is to improve the efficiency or productivity of the education enterprise and this includes amelioration of quality. Evaluation is not an end in itself and should lead to decision-making on specific action to be taken for educational development.

The evaluation process then may be envisaged as having five main stages as follows:

(a) definition or adaptation of objectives for evaluation purposes and setting of targets to be achieved over a certain period of time (if not already defined);
(b) determination of the criteria and standards to be applied for measuring the degree of achievement;
(c) assessment of degree of achievement in the light of objectives and criteria;
(d) diagnosis of the results;
(e) making proposals for improvement including an ordering of priorities.

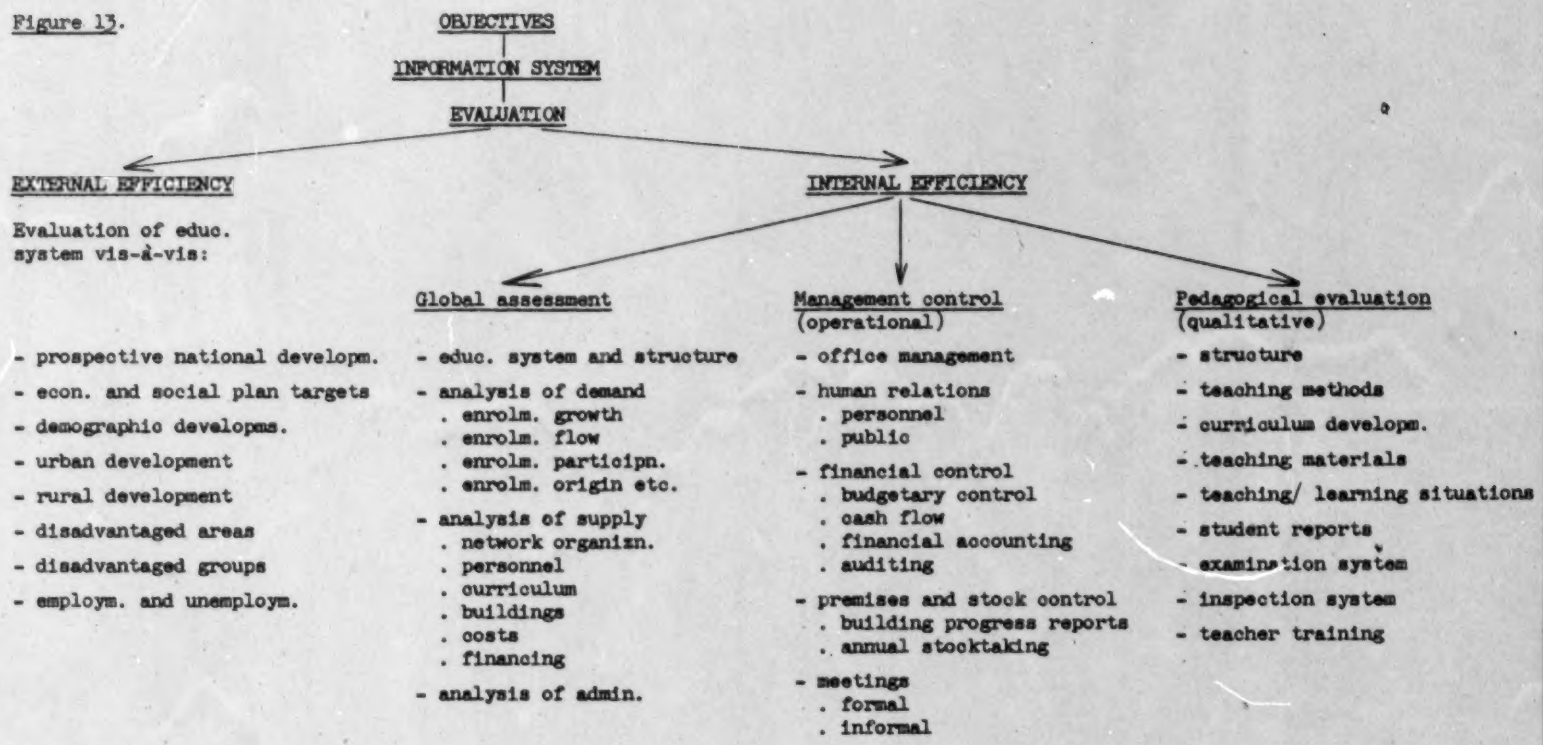
2. Scope of evaluation

A certain conceptualization of the full scope of educational evaluation is illustrated in Figure 13. It should be mentioned that all the elements shown - evaluation of external and internal efficiency, global assessment, management (or operational) control and pedagogical (or qualitative) evaluation - are interrelated and are separated here solely for illustration purposes.

Three types of evaluation - continuous, periodic and ad hoc - may also be distinguished. Continuous evaluation such as financial accounting, building progress reports and student reports is exercised mainly within the management control and pedagogical evaluation categories. Periodic evaluation refers to regular and recurring fixed-time exercises such as annual stock-taking and audit, annual report, annual examinations or even quinquennial global assessment in the context of plan preparation. Ad hoc evaluations are made in such circumstances as pre-planning of major reforms or as part of feasibility or sensitivity or other research studies.

It is clear from Figure 13 that objectives constitute the yardstick against which evaluation is made. It is evident also especially in the light of the breakdown of evaluation into continuous, periodic and ad hoc categories, that effective evaluation requires the availability of a good Information System.

Figure 13.


OBJECTIVES
INFORMATION SYSTEM
EVALUATION
EXTERNAL EFFICIENCY
INTERNAL EFFICIENCY
Evaluation of educ. system vis-à-vis:
- prospective national developm.
- econ. and social plan targets
- demographic developms.
- urban development
- rural development
- disadvantaged areas
- disadvantaged groups
- employm. and unemploym.
Global assessment
- educ. system and structure
- analysis of demand
. enrolm. growth
. enrolm. flow
. enrolm. particip.
. enrolm. origin etc.
- analysis of supply
. network organizn.
. personnel
. curriculum
. buildings
. costs
. financing
- analysis of admin.
Management control (operational)
- office management
- human relations
. personnel
. public
- financial control
. budgetary control
. cash flow
. financial accounting
. auditing
- premises and stock control
. building progress reports
. annual stocktaking
- meetings
. formal
. informal
Pedagogical evaluation (qualitative)
- structure
- teaching methods
- curriculum developm.
- teaching materials
- teaching/ learning situations
- student reports
- examination system
- inspection system
- teacher training

As was seen earlier the Information System must service the definition of objectives as well as plan preparation, implementation and evaluation. Data collection should to a large extent be geared to facilitate eventual evaluation. Similarly storage of data should be organized to facilitate ready retrieval for analysis and evaluation purposes. (1) Evaluation strategies which will produce an evolving Information System relevant to the many facets of decision-making about development along a broadly-based continuum should be the aim. It must not be forgotten that objectives change and information systems and evaluation approaches must evolve accordingly.

3. External efficiency

Are objectives relevant to the economic and social demands of society? Is the education system organized and structured to efficiently supply these demands? Is optimum use being made of available resources? These are the major questions which must be answered in evaluating external efficiency.

More specifically an assessment should be made of the extent to which the education system supplies the manpower needs of the economy not only in numbers but also with the kinds of training required. The appropriateness of the curriculum generally to the needs of the community must also be assessed. The extent to which the education system is successfully tackling priority problems such as poverty in urban slums and remote rural areas, disadvantaged circumstances among certain groups and unemployment should be examined.

4. Internal efficiency

Evaluation of internal efficiency is envisaged as a three-pronged exercise:

(a) global assessment
(b) management (or operational) control
(c) pedagogical (or qualitative) evaluation.

(a) Global assessment

As shown in Figure 13 evaluation here relates to a systematic analysis and diagnosis of the demand and supply aspects of the education system. This is the exercise generally undertaken prior to the preparation of the Education Plan as described in detail earlier or as a performance evaluation exercise against targets set earlier. It refers on the demand side to the comparative analysis of enrolment growth in recent times including assessment of flow and participation rates, spatial and sociological origin of pupils. On the supply side comparative analysis is made of school network organization, level of qualifications of teachers and pupil/teacher ratios, curriculum options available and those chosen, standard and utilization of buildings. Absolute and relative growth of recurrent and capital costs and financing and the trends of unit cost and unit of financing per pupil are examined comparatively. An assessment of the efficacy of administration is also made. Of particular interest are the inequalities discovered during the evaluation process.

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(1) It should be mentioned here that the Library and Information Service (LIS) and on-going research projects also form part of the Information System.

In ideal circumstances such evaluation is made annually and documented in the Annual General Report thus lightening the extent of global assessment required at the stage of preparing the Education Plan. As the level of sophistication of educational administration develops such detailed evaluation will also be carried out annually at regional and local levels.

(b) Management (operational) control

It may be seen from figure 13 that management control refers mainly to continuous evaluation in the educational office(s) of the range of operations from running the office(s) to the control of formal and informal meetings.

Organization and Methods' (O and M) evaluation or management analysis in education offices frequently reveal that personnel time, office space, equipment and materials are not used in the most efficient way. Periodic evaluations of office management under these headings are accordingly necessary.

The extent of internal evaluation undertaken depends on the level of sophistication of the Information System available but at least individual personal files are kept for all staff which include curriculum vitae giving information on qualifications with related years and institutions, employment record, references and other pertinent data. Progress reports by inspectors may also be included. On the other hand teachers' and students' unions perform an external evaluation rôle in their deliberations and make representations accordingly to top administrators. Public evaluation is made through contributors at Government Debates, Education Board meetings and coverage by the media. Parent-teacher Associations also play a certain external evaluating rôle here.

Evaluation through financial accounting is continuous in nature. Educational accounts are structured in various ways to show income by time and source, expenditure by time and purpose. A major aim is to avoid continuous costly overdrafts. Some systems of budgeting control based on unit costs should be operated. Such a system enables delegation of authority to various schools and colleges to disburse funds under various headings to a certain limit, thus facilitating not only increased autonomy but also avoidance of penny-pinching bottlenecks. In more sophisticated circumstances PPBS may be used. The annual audit forms also of course a part of the evaluation process.

Building progress reports with the use of PERT or CPA systems are used for the control of construction and the disbursement of capital funds accordingly. A rotation system for the painting and repair of existing buildings, say each quinquennium, may be used. Annual stock-taking is used for officially recording stock added, transferred, or worn-out or lost.

(c) Pedagogical (qualitative) evaluation

Pedagogical or qualitative evaluation concerns the teaching/learning process more specifically as indicated in Figure 13. (1)

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(1) Pedagogical evaluation is more frequently associated with University Education Departments or Educational Research Institutes but may to a certain extent be conducted at Education Offices in co-operation with these other bodies.

Education system and structure patterns are evaluated comparatively to determine the extent to which they facilitate efficient operation, particularly from the pedagogical and social viewpoints although cost-efficiency assessment must certainly be made. For example, the influence of age of entry, period of compulsory education, size of school, size of class, extent of specialization, etc., on productivity of the system may be assessed. Similarly the merits of selective as against comprehensive systems should be analysed.

Assessment of teaching methods constitutes an important part of pedagogical evaluation. Here measurement of Outputs (or outcomes) in defined case-studies of sets of schools and/or pupils on cognitive, attitudinal or social aspects, as against Inputs (or certain teaching processes) may be made. The student as learner is changing as rapidly as contemporary extra-school life; the important 'educational' influence of the media especially television in this regard is recognized. Teaching-learning strategies must accordingly be continuously evaluated and researched. Comparative cost-efficiency analyses of different strategies must be made to give guidelines on the most productive methods to be followed.

It is evident that what is to be learned is equally important as the method of learning. Accordingly curriculum content must be continuously evaluated to ensure that its development is planned to conform to the needs of a rapidly evolving society. It is necessary in this same context that teaching and learning materials and aids are assessed.

The most traditional form of student evaluation, the examination system, must be assessed as its influence on teaching methods and learning approaches is known to be great. Assessment of self-evaluating student reports, controlled tests or assessment scoring by the school as an alternative or complementary measure to the examination system should be undertaken.

Normally the major function of the inspectorate (supervising or advisory service) is to evaluate and advise on the efficacy of the teaching-learning process and on the performance of teachers. It would appear, however, that a large proportion of the inspector's time is spent on other affairs. The inspector constitutes a vital link between central and regional administration and the schools and must of course carry accordingly some administrative responsibilities. However, assessment of the inspection function is necessary to ensure firstly that the inspector is sufficiently trained and secondly that he is enabled to devote sufficient time to his major function which lies in the pedagogical area.

Reform in the training of teachers must keep pace with the many other changes taking place - in the student, the school and in society, technological changes, research developments, etc. Evaluation of teacher training then must be undertaken particularly with regard to content and training methods and approaches to in-service training of teachers especially for curriculum development purposes.

It will be evident from this overview that while evaluation can validly be conceptualized as having a distinct function from the other administrative elements named, there must still necessarily be some overlapping with objectives' definition, plan preparation and implementation. The extent of evaluation at any point in time may also vary as well as the evaluation

procedure. In effect each programme and project should strictly speaking have an evaluation design incorporated at the planning stage allowing for continuous performance evaluation during implementation and for taking corrective action if necessary. It is this concept which underlies the use of such modern management techniques as Operations Research, PPBS (Planning, Programming, Budgeting System), Budgetary Control and PERT (Programme Evaluation and Review Technique) or CPA (Critical Path Analysis). (1)

(1) Application of modern management techniques to educational development is a subject worthy of detailed discussion but unfortunately cannot be treated within the scope of the present overview.

VII. CONCLUSION

It is clear from this overview of the educational administrative process that implementation of plans is very complex and requires at least as much skill as that involved in educational planning.

The bottleneck generally experienced between the planning and implementation stages is symptomatic. With growing pressure for administrative decentralization and for participation by teachers, students, interested groups and the public in the planning and decision-making processes, the time seems due for increased emphasis on training in educational administration.

Educational development is certainly being hampered by lack of adequate administrative infrastructure. Indeed one may well ask in how many systems will the following be found:

- clearly-defined objectives;
- objective-oriented information systems;
- regional educational plans;
- adequate communication procedures;
- defined evaluation process.

This paper constitutes no more than a general overview of the educational administration process. It is hoped that the reader may be stimulated by it to read and reflect more deeply on the range of complex interrelated elements and factors which form the amalgam we call educational administration.

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OCCASIONAL PAPER No. 38: While a fair degree of sophistication has been achieved in the techniques of planning educational development a plethora of implementation problems still remain. Many of these problems may be imputed to weaknesses in administration. Increasing emphasis must accordingly be placed on training in the skills of educational administration at all levels of the responsibility. The educational administration process is complex covering a wide range of activities from definition of objectives on one side to performance evaluation on the other. It is particularly complex on account of the many human factors involved which are difficult to analyse. This paper constitutes a useful general introduction for those who wish to do a more profound study later of the various elements of educational administration.

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